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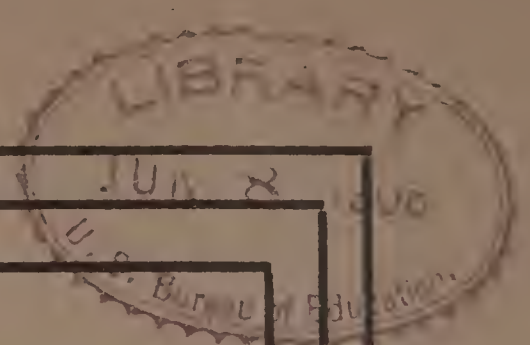


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The Quarterly Publication of
the Historical and Philosoph-
ical Society of Ohio

C I N C I N N A T I O H I O



Vol. III, 1908, No. 1
JANUARY-MARCH

Historical and Philosophical Society of Ohio

Burnet Woods, - Cincinnati, Ohio

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Quarterly Publication of the His-
torical and Philosophical
Society of Ohio

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1859

Vol. III, 1908, No. 1
JANUARY—MARCH

Notices Concerning Cincinnati

BY
DANIEL DRAKE

PART I.

*A Page-for-page Reprint of the First Twenty-eight Pages
of the Original Issue of 1810.*



PRESS OF JENNINGS AND GRAHAM
CINCINNATI, OHIO

Entered as second-class matter June 12, 1906, at the post-office at Cincinnati,
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FOREWORD

Dr. Daniel Drake's NOTICES CONCERNING CINCINNATI was printed for private distribution among the author's friends, consequently it is regarded as "without a doubt the rarest book relating to Cincinnati." This fact alone would justify this reprint, but the book possesses an additional value as a bit of tangible evidence of creditable scientific attainment in the Ohio Valley a century ago.

The author of this sketch is too well known in the early history of this section to need an extended notice here. The work itself appeared in two installments, both published during 1810. The first comprising the three divisions herein reprinted, and also the APPENDIX, appeared about May of that year. The second installment appeared about August, and comprises divisions IV and V, which with the APPENDIX will be printed in the next issue of the QUARTERLY. Notices of the book may be found in Thompson: *A Bibliography of Ohio*, p. 100, and in the SOCIETY'S publication: *A Partial List of the Books in its Library relating to the State of Ohio*, p. 30.

The Historical and Philosophical Society is fortunate in possessing two complete copies of the work and an additional copy of the first installment and the APPENDIX. One of the complete copies has the following note by Mr. Julius Dexter, written on its fly leaf: "The 'Notices' appeared in two parts. Part I contained pages 1-28 and the four pages of the Appendix. Part II contained pages 29-60 and was not printed until several months after Part I had appeared (see note in Daniel Drake's handwriting at end of volume). This copy is made up from Part I, given by E. J. Carson, and Part II, given by A. H. McGuffey. Part II had been Drake's own copy. —J. D." The note in Dr. Drake's handwriting, mentioned above,

is as follows: "The Printing of the Sect. of Memoranda respecting our diseases is postponed for a few months." This is followed by an illegible scrawl in another handwriting. The second complete copy belongs to the THOMPSON COLLECTION of the Society's library. Both of these copies are bound. The incomplete copy is an unbound pamphlet, with the signature "Gen'l J. S. Gano, Covington, Ky., on the outside cover, and "From Mrs. Laura V. Gano, Sept. 1, 1900," on the inside cover. At the end it has a similar note in Dr. Drake's handwriting.

We have attempted an exact reprint of the 1810 edition, with the exception of two typographical differences. The old-fashioned "s" has been changed and the diphthong "æ" separated, and the compass headings of the columns in the first table on page 20 have been arranged vertically, rather than horizontally. Otherwise the reprint is exact, including errors. It speaks well for the printing of that day and section that there are so few of these. Miss Hamlin has given valuable assistance in reading the proof.

I. J. C.

NOTICES
CONCERNING
CINCINNATI.

BY DANIEL DRAKE.

CINCINNATI:
PRINTED FOR THE AUTHOR,
AT THE PRESS OF JOHN W. BROWNE & CO.

1810.

PREFATORY REMARKS.

Such a *Calendarium Flora* as would exhibit the progress of vegetation at this place, and answer for insertion in the *Medical and Physical Journal*, or some other Magazine, and nothing more, was at first intended. But the physical sciences are so intimately connected, that the narrow limits then prescribed, have been overstepped, and the addition of notices respecting our soil, climate and diseases, now renders the floral calendar the most inconsiderable part.

Even, however, in its extended form, no great degree of importance is attached to this humble prodromus; and the original design, of sending it to the editor of that Journal, would still be adhered to, did not the writer wish to distribute several copies of it among medical and other friends, as an acknowledgment for similar information communicated to him. To them he addresses it without hesitation, and only requests that they make a careful distinction, between what is given as fact, and what as hypothesis, or deduction: The latter *may* be correct, the former can scarcely be incorrect.

It only remains to observe, that the *manner* in which it is executed may probably be considered too elaborate and methodical for such an immature production; but in addi-

tion to the existance of insuperable obstacles to the attainment of an easy and elegant style, the writer labored to be concise, and conciseness requires method.

Cincinnati, Ohio, May 1, 1810.

NOTICES CONCERNING CINCINNATI.

I. *Topography.*

CINCINNATI, situate on the northern bank of the river Ohio, in a bend of gentle curvature, is in 39 deg. 7 min. N. Lat. and about 84 deg. 30 min. W. Longitude.

Its site is not equally elevated. A slip of land, called the BOTTOM (most of which is inundated by extraordinary freshes, though the whole is elevated several feet above the ordinary high water mark) commences at Deer-creek, the eastern boundry of the town, and stretches down the river, gradually becoming wider and lower. It slopes northwardly to the average distance of 800 feet, where it is terminated by a bank or glaxis, denominated the HILL, which is generally of steep ascent, and from 30 to 50 feet in height. In addition to this, there is a gentle acivity for 6 or 700 feet farther back, which is succeeded by a slight inclination of surface, northwardly, for something more than half a mile, when the hills, or real uplands commence. These benches of land extend northwestwardly, (the upper one continually widening) nearly two miles, and are lost in the interval grounds of Mill-creek. The whole, form an area of between 2 and 3 square miles; which however comprehends but little more than a moiety of the expansion which the valley of the Ohio has at this place. For on the southern side, both above and below the mouth of Licking river, are extensive elevated bottoms.

The hills surrounding this alluvial tract, form an imperfectly rhomboidal figure. They are between 2 and 300 feet high, but the angle, under which they are seen from a central situation, is only of a few degrees. Those to the S. W. and N. E. at such a station, make the greatest, and nearly an equal angle; those to the S. E. and N. W. also make angles nearly equal. The Ohio enters at the eastern angle

of this figure, and after bending considerably to the south, passes out at the western; Licking enters through the southern, and Mill-creek through the northern angle.—Deer-creek, an inconsiderable stream, enters through the northern side. The Ohio, both up and down, affords a limited view, and its valley forms no considerable inlet to the E. and W. winds. The valley of Licking affords an entrance to the S. wind, that of Mill-creek to the N. W. and that of Deer-creek, (a partial one) to the N. E. The other winds blow over the hills that lie in their respective courses.

The Ohio is 535 yards wide from bank to bank, but at low water much narrower: no extensive bars exist, however, near the town. Licking river, which joins the Ohio at right angles, opposite the town, is about 80 yards wide at its mouth. Mill-creek is large enough for mills, and has wide alluvions; which, near its junction with the Ohio, are annually overflowed. Its general course is from N. E. to S. W. and it joins the Ohio at a right angle.

Ascending from these valleys, the aspects and character of the surrounding country are various. On the southern, or Kentucky side of the Ohio, the land is hilly, and the interval grounds narrow; on this side the land is more level, and the interval spaces wider. These spaces are covered with large sycamores (*platanus occidentalis*) hackberries (*celtis occidentalis*) poplars (*liriodendron tulipifera*) the beech (*fagus Americanus*) the buckeyes (*esculus*) hickories and walnuts (*juglans*) honeylocusts (*gleditsia triacanthos*) 2 or 3 oaks (*quercus*) paupow (*annona glabra*) grape-vines (*vitis ferotina*) 2 species of ash (*fraxinus*) sugar trees (*acer saccharinum*) black locust (*robinia pseudacacia*) and most of the other 40 or 50 trees and shrubs, which compose the *Arbustum Terrae Fertilis* of the western country. While the shores of the creeks and rivers are embellished by willows (*salix*) cotton trees, (*populus deltoid*) and red maple, (*acer rubrum*.)

The uplands produce either the trees already mentioned, or the numerous species and varieties of oak, or beech, or the whole blended together, according to their differences in fertility and moisture.

No barrens, prairies, or pine lands are to be found near the town.

II. *Geology.*

The internal structure, of the site of our town, demonstrates, that it is wholly "made ground," and that water has been the immediate agent. On the upper division, or Hill, the soil near the eastern and western extremities is better, but in the middle it is extremely thin, exhibiting every where the loam over which it is spread. This loam, which constitutes the second stratum, is from 4 to 8 feet in depth. It presents but few varieties, affording besides the sand and brick clay which compose it, nothing more than occasional siliceous pebbles, and fragments of argillaceous grit. This layer is supported by a grand stratum, composed of pebbles, gravel and sand. It is of unknown thickness, wells having been dug to the depth of 80, 90 and 100 feet, without passing through it. The particulars which have been observed respecting its construction are the following:—1. The sand; gravel and pebbles are commonly blended together; but, in some places the sand exists in beds distinctly from the others. These beds are found at considerable depth, and generally exhibit in the position of their particles, a kind of oblique or wave-like stratification; while that of the superincumbent gravel is more horizontal.—2. A large portion of the pebbles of this stratum are opaque calcareous carbonate; the rest are semi-transparent, white, blue, brown, and red amorphous quartz; flint; and several varieties of granite, some of which are undergoing decomposition. The calcareous fragments are discoid, the siliceous approach more or less to the globular figure. They are all water-worn, and resemble those found on the beaches of our rivers.—3. In some places these pebbles are cemented by carbonate of lime into breccia. It is somewhat tabular, and horizontally disposed.—4. No fluvial shells, nor exuviae of any kind have been found in this stratum, except a solitary vertebra of the mammoth, which lately was discovered about 20 feet below the surface. It had no doubt been deposited there at the same time with the gravel among which it was found.—5. Veins of loam highly colored, and of fine blue clay, have been occasionally found, more especially along its southern border.—6. In the well of capt. Prince at the depth of 36 feet, that of judge

Symmes at 20 feet, and of Jacob Burnet, Esq., at 90 feet, fragments of vegetable matter have been found. In that of the latter gentleman were dug up the stumps or foundations of two trees, one of considerable size, the other smaller. They were represented by the workmen as having grown there, but from the very depressed situation they occupied, and from their resting on sand, it is more probable they were *deposited* there, indicating that to have been once the bottom of a lake or pond, rather than the surface of the dry ground. And this opinion coincides with Mr. Volney's supposition of an ancient lake in this country.—8. The wells of maj. Ruffin, judge Symmes and gen. Lytle, all in a line from the river, have formerly afforded water, considerably impregnated with iron, and probably also with sulphur; both of which might have been supplied by the decomposition of fossil wood.—And where this line intersects the river, the sand and gravel of the beach are cemented into a kind of ferruginous breccia, by oxide of iron.

Such, as far as it has been explored, is the structure of the higher alluvion: that of the lower, or Bottom, differs from it in some respects. The layer of mould is several feet thick, and gradually changes into clay, which terminates about 20 feet from the surface. After this, sand and gravel present themselves, and continue to the calcareous and schistous strata, which underlay the town and adjoining uplands.

Of the geology of the surrounding country but a partial account will be attempted. Its alluvial portions like those already described, consist of mould, loam, clay, sand and gravel, to the depth of several feet. The superior strata of the uplands are mould, from 6 to 24 inches deep, and loam, with loose horizontal limestones and fragments of argillaceous sandstone, to the depth of from 6 to 12 feet. These strata, on this side of the river, are supported by argillaceous schistus (the *argilla fissilis* of Turton's Linnaeus) alternately and horizontally disposed with calcareous rocks; which construction continues as low as we have yet penetrated. The former substance, in quantity, greatly exceeds the latter, and really gives to this part of our state a *schistous* character. It has a dull blue color, breaks into thick irregular discoid fragments, softens and is diffusible in water, from which it is probably, in certain situations, deposited, forming beds of potter's clay (*argilla lithomarga*;) it adheres to the tongue, can be scratched with the nail, effervesces with acids,

feebly before, but briskly after pulverization, and has 2.55 specific gravity. It contains neither sulphur nor bitumen. The limestone in this region is from 1 to 18 inches thick; is found in oblong or irregular indeterminate angular pieces, of various sizes; has a coarse grain, and is of different densities, with the medium specific gravity of 2.65. The lime obtained from it is said to possess great strength, but adheres slightly, and is not very white, no doubt from the abundance of iron it contains.

An observer, upon examining this calcareo-schistous region is ready to pronounce, that the limestone is nothing but indurated slate; for the change of density and texture, from one to the other, is, in many places, so gradual as to be perfectly imperceptible. This, however, can only be determined by chemical analysis.

Several varieties of marine exuviae, which I am not now prepared to enumerate, are found imbedded in, or impressed on the surface, of these calcareous stones. The slate also, is not without appearances of this kind, though they are not so numerous nor so large.

Along the beach of the Ohio, smooth lumps of sandstone, of different degrees of hardness, and of various colors and sizes, are by no means uncommon. In the lower bank of Licking River, just at its junction with the Ohio, but more especially in some of the river hills, about 15 miles above this town, are huge shapeless masses of breccia or pudding stone. It consists of rolled, calcareous and siliceous pebbles, cemented by carbonate of lime. It is found in hills which appear to have had a secondary formation, and constitutes their nuclei. As we advance into Kentucky, the proportion of argillaceous matter decreases rapidly, until at length dense, thick, almost interminable, calcareous rocks, separated but slightly, form the solid foundation of that state. It has been asserted, that the prevalence of schistous matter ceases at the Ohio river; this may be the case in some places, but it certainly is not everywhere.

Granitical pebbles have been already mentioned, as frequently occurring in the alluvion on which our town is built; but *they* are not *all* the granite this country affords. About fifteen miles north of this place, is a zone or region of larger masses of that compound. It runs from east to west. These masses, some of which are several feet in diameter, are of a reddish color, amorphous, smooth and perpendicu-

larly stratified. It is believed, that similar fragments are bestrewn over most of our state.

The country, between this and lake Erie, is probably erected on a frail calcareo-argillaceous foundation: but little, however, is accurately known concerning any portion of its natural history.

From even this cursory topographical and geological view, we perceive the reason why this state abounds, considerably, in interval lands, and durable springs; while in Kentucky, the springs, though numerous during the rainy season, are transient, and the interval spaces narrow. In that state, the hills are generally steep enough to convey most of the rains rapidly away; and what water does filter through the soil and clay is arrested by the broad impermeable rocks, and conducted to the banks of the numerous creeks, where it bursts out in temporary springs. The surface of this state, in most parts, is so level as to retain a large portion of the water which falls, while the frailer structure of the ground readily permits it to sink below the region of evaporation, where it collects and forms permanent springs. In Kentucky, the rivers and small streams can effect but little, in a lateral direction, against the dense calcareous rocks, which every where abound beneath the surface, and therefore are restricted to narrow limits. In this state, the rivers and creeks are constantly undermining and wearing away their resistless and crumbling banks, and thereby widen their valleys.

About one mile up Licking river, are several copious chalybeate springs, which however are covered with water, except when the river is low. To the east of the town, from under the hill beyond Deer-creek, there bursts out a feeble vein of water, considerably impregnated with sulphate and muriate of soda. But few springs exist about the town. Wells are more common, tho' not very numerous: most of them terminate in sand and gravel. The water they afford is hard, incrusting the vessels in which it is boiled. It contains uncombined carbonic acid, carbonates, muriates, probably nitrates, but no sulphates.

That of the river is softer: In November last, when it was partially examined with chemical tests, it appeared to contain muriate of soda and uncombined soda. At other seasons of the year it no doubt contains other principles.

III. *Climate.*

If a history of the climate of North America, in these middle latitudes, were to be attempted, it might be found both useful and natural, to distribute it into four great divisions:—

1. The states lying east of the Alleghenies—2. The countries lying west of the Chippewan, or Stoney mountains—3. The mountains themselves—4. The broad shallow valley, or vast platform comprehended between them; which is drained by the Ohio, Mississippi, and Missouri, with their thousand tributary streams.

Each of these great regions, probably, has a climate somewhat peculiar. That of the first is pretty well known; that of the second has been ascertained to differ from the others; that of the third, from its elevation, no doubt possesses many peculiarities, but our knowledge of them is very limited; that of the fourth is better known, but the aggregate of the *truths*, published respecting it, is by no means equal to a full display of its character. This we may regret, but it cannot surprise us, for accurate, long continued cotemporary observations, at different places, must be made, before the climate of any country can be correctly estimated.

The most important results, of those recently made at this point in the great inter-montane region, will now be stated. For the purpose of comparison, they are placed in connection with certain Atlantic observations, the most proper that could be procured. They are not, however, so perfectly comparable as could be wished, but may answer the end of general, though not of critical, information.

1. TEMPERATURE.

The mean annual heat of this town, during 4 years, was as follows:—

In 1806, deg. 54.1—1807, 54.4—1808, 56.4*—1809, 54.4.

The average of these, 54.8 deg. may be received, without much hesitation, as the standard temperature of this place: for our deep wells, and copious perennial springs, are constantly about 54 degrees. The mean annual heat of Philadelphia, 50 min. north of this town, from 6 years observation by Dr. Coxe,† was 54.16 deg. that of Springmill, on the Schuylkill, 57 min. north of this, from 2 years observations by Mr. Legeaux,‡ was 55 7 deg. The mean summer heat, for 4 years at this place, was 75 deg. for 6 years at Philadelphia, 75 5 deg. and for three years at Springmill, 73.8 deg. In 1800, the summer heat in Philadelphia, was 75 deg. at Gnadenhutten,§ in this state, about 25 min. farther north, it was 72 deg. The afternoon summer heat of this place, in 1805, was 79.7 deg. and in 1808, (a very hot year) 83.4 deg. that of Springmill in the former year, was 89.3. During that summer, at Springmill, the thermometer was 61 times at or above 90 deg. while at this place, during the summer of 1808, it was at or above 90 deg. only 32 times; and for 5 years past, it has been at that point, only 71 times. In the course of the same period, it has been below cypher 10 times at this place; while from 1798 to 1803, at Philadelphia, it was never as low as cypher.|| And during the most intense degree of cold experienced in that city, for 20 years previous to 1805, the thermometer was only 5 deg. below cypher; ** 6 deg. higher (as will appear presently)

* These three are the results of observations by Jared Mansfield, Esq. Surveyor-general of the United States, which he has kindly permitted me to use. The last year's observations were by myself. Our thermometers (which correspond) were always hung in the shade and in contact with wood. His station was 4 miles north of this place, but in circumstances of local situation and elevation (about 50 feet above the high water mark of the Ohio) nearly the same with mine. Most of the morning observations made by him, however, were at too late a period to indicate the lowest temperature of the 24 hours; but mine were made at or before sunrise, which furnished proper data for correcting his. And if the difference between morning and afternoon heat be the same in different years, the results expressed above may certainly be depended on.

† See Medical Museum.

‡ Rush's Inq. & Obs. and Barton's Med. Phy. Journal.

§ Barton's Journal.

|| Med. Museum.

** Rush's Inq. & Obs.

than was felt here in 1807, and 2 deg. higher than our last winter afforded, for two successive mornings.

The comparative mean heat of each month and season in 1809, at this place, and 1802 at Philadelphia, (two years which had the same mean temperature) may be seen from the following table:

	Cincinnati.	Philadelphia.		Cincinnati.	Philadelphia
January, deg.	25.1	deg. 40.8	July	deg. 73.4	deg. 74.7
February	34.2	34.5	August	73.3	74.5
March	44.0	42.3	September	67.8	67.2
April	57.9	52.9	October	63.3	59.9
May	61.4	59.1	November	44.3	45.6
June	72.7	71.1	December	35.9	33.3
Winter	Cincin. 81.73	Philad. 36.66	Summer	Cincin. 73.13	Philad. 73.66
Spring	54.42	51.33	Autumn	51.43	54.23

The monthly thermometrical ranges at Cincinnati, in 1809, Philadelphia in 1802, and Springmill in 1805, are exhibited in the following table:

	Cincinnati	Philadelphia	Springmill.
	°		°
January	from deg. 2 to 47	from 24 to 57	from 2.9 to 63.5
February	13 60	10 50	3.9 65.7
March	16 78	24 66	20.1 84.9
April	27 88	38 70	37.6 92.7
May	38 86	48 71	35.4 88.7
June	48 94	58 86	44.4 95.0
July	56 93	63 88	55.6 100.2
August	54 89	60 88	56.7 100.6
September	43 87	48 84	42.6 98.4
October	33 85	42 76	29.7 88.2
November	5 72	32 57	27.5 74.7
December	11 62	12 64	22.3 66.4

The comparative mean difference, between the morning and afternoon temperatures, for the months, seasons and year, at Cincinnati and Springmill, may be seen from the following table:—

	Cincin. 1809.	Springm. 1805.	Cincin. 1809.	Springm. 1805.
January	deg. 10.8	deg. 16.4	July	deg. 15.3
February	11.6	20.5	August	15.0
March	18.0	23.8	September	21.5
April	20.6	23.0	October	18.6
May	24.6	25.4	November	16.0
June	16.0	22.7	December	11.0
Winter	11.1	16.0	Summer	15.4
Spring	20.8	24.0	Autumn	18.7
		Annual mean difference,	16.5	20.4

The greatest diurnal variations from cold to heat, and from heat to cold, in each month in 1809, at Cincinnati, and of 1805 at Springmill, will appear from the following table:

<i>Cincinnati.</i>		<i>Springmill.</i>	
From cold to heat.	Heat to cold.	Cold to heat.	Heat to cold.
January deg. 30	deg. 32	deg. 40	deg. 22
February 31	22	45	29
March 37	36	45	36
April 42	32	40	47
May 36	40	37	37
June 30	25	38	38
July 26	25	35	34
August 21	26	34	30
September 29	30	32	38
October 33	25	39	30
November 38	26	36	36
December 32	28	33	30
Average, 32	28	38	34

Hence it appears, that at both places, the sudden changes from cold to heat are greater than those from heat to cold, which is contrary to popular opinion.

It must be observed that comparisons between the years 1805 and 1809, are not unexceptionable, for the former was much more remarkable for bold and sudden changes than the latter.

The annual thermometrical extremes and ranges, at Cincinnati, during 1806, 7, 8, and 9; at Philadelphia, during 1800, 1, 2, and 3, and at Springmill during 1787 and 1805, were as follow:

<i>Cincinnati.</i>			<i>Philadelphia.</i>			<i>Springmill.</i>		
<i>Lowest.</i>	<i>highest.</i>	<i>range.</i>	<i>Low.</i>	<i>High.</i>	<i>range.</i>	<i>Lowest.</i>	<i>highest.</i>	<i>range.</i>
9	94	85	10	90	80	5	96.1	91.1
11 below 0	95	106	7	90	83	2.9 below 0,	100.6	103.5
4 below 0	98	102	10	88	78	—	—	—
2 below 0	94	96	14	90	86	—	—	—
2 below 0	95.25	97.25	10.25	89.5	81.7	3.9	98.3	97.6*

These tabular displays of the results of observations, although very limited in their extent, indicate pretty correctly, it is presumed, the annual and monthly standard heat, and the extremes, ranges, and variations of temperature, at this place, and two nearly corresponding situations in the Atlantic states. From which it appears, that the opinion

* This line shows the mean of the above columns.

concerning the greater heat of this climate, first expressed by our late illustrious President, afterwards glanced at by Loskiel,* and since supported and extended by Mr. Volney, is not, at least in its full extent, correct. The former published his celebrated NOTES, at a time when but obscure accounts respecting this country had been received; the latter *traveled here* in 1796, and therefore should have possessed more correct information. He however seems to have been sometimes misled by a favorite and ingenious, but not unexceptionable hypothesis.

It is true that these respectable writers have collected several facts, and might even have added more, which apparently tend to support the assertion, "that this country is warmer by three degrees of latitude than the Atlantic States." But as the thermometrical observations made at this place tend considerably to invalidate this opinion, it is necessary, if possible, to refer the phenomena they have observed to other causes. It may be urged, however, that the observations which have been stated, should not be compared with those made at Philadelphia; for the summers of large cities, it is said, are warmer than those of the surrounding country, by several degrees of latitude.† If this were the case, the comparisons that have been made, would indeed be altogether inconclusive. But that it is not, seems highly probable: for in 1805 the summer and annual temperatures were precisely the same at Philadelphia and Springmill, though the latter has 50 feet greater elevation; and the summer heat of 1787 and 1805 at Springmill, and 1793 at Nazareth, bore the same ratio to the annual heat, as the summer and annual heat of Philadelphia ordinarily bear to each other.‡ So that the comparisons which have been made are certainly entitled to considerable confidence.

It has generally been thought that less ice is formed in this country, than in the same latitudes in the Atlantic States. This observation has more especially been applied to the Ohio and Delaware, the former of which is almost every winter frozen over at Philadelphia, while the latter at this place is but seldom blocked up with ice which it floats, and was never known to freeze over. Geography

*History of the Missions.

†Caldwell's Memoirs.

‡Med. Museum, Med. & Phys. Journ. & Rush's Inq. & Obs.

however furnishes an explanation of this fact. The Delaware rises in mountainous lands, and runs nearly a southern course, bringing down with it the temperature of an elevated region of 42 deg. latitude. The Ohio also rises in a mountainous tract, but before reaching this place it meanders for 400 m. in a deep valley, which probably somewhat reverberates the sun's rays, & which in one place is as low as 38 deg. lat. receiving in its course, the Great Kenhawa, from lat. 36 deg. the Big Sandy and other southern streams. In consequence of this, the water is too warm to be reduced extensively to ice, unless the duration of our periods of cold weather (which are frequently intense) were longer. This explanation receives support from the fact, that the great river Mississippi, which rises far north, has had ice sufficiently strong to bear carriages, formed on its surface, in a single night, in 38 deg. lat. This was affirmed to me by the Messrs. Rectors, as occurring at St. Genevieve, in the winter of 1808-9.

The residence, in this country, of the Paroquet, a bird which in the maritime states, does not inhabit a higher latitude than 36 degrees is considered by Mr. Jefferson* a proof of the greater mildness of our climate. But his book furnishes sufficient evidence, that those parts of Virginia which are nearly two degrees farther north than the habitation of the Paroquet, have a milder climate, or at least as mild an one as we know ours to have. So that some other explanation of this fact must be adopted, and that furnished by the learned professor Barton, seems the most plausible. He ascribes this difference of cis and trans-montane latitude to the great length and southern course of our rivers; along which birds in migrating, are fond of traveling.†

This more extensive migration of birds, (animals that are known to contribute very much to the dissemination of seeds) may be one reason why certain vegetables, such as the reed and catalpa, are found farther north in this than the Atlantic countries; but the southern origin of the rivers of western Virginia, Kentucky, and Tennessee, and the fertile, calcareous, alluvial constitutions of our soil, probably are the true causes.

After all, however, it is not denied that this country is possibly warmer than the same parallels in the eastern states, but not by any means in such a degree as has been supposed;

* See his Notes.

† Fragments of the Nat. His. of Penn. as quoted by Dr. Mease.

and Mr. Volney's tropical summers, during which the thermometer rises to 90 deg. and upwards, for 60 successive days, have never yet occurred here.*

It is asserted in Loskiel's History of the Missions, and the opinion also prevails here, that as we advance northwardly on this meridian, the increase of cold is in a greater ratio than the increase of latitude. No conclusive corresponding observations have been made, to determine this point, but the most striking of those which have been collected shall be briefly related.

At Lebanon, not more than 25 min. north of this place, according to the information of my friend Dr. J. Canby, and others, the complete evolution of vegetation in the spring, is several days later than at this place. Frost occurred there after the middle of May, 1809, more than a week later than at this place. At Dayton and throughout the champaign country traversed by Madriver, in the latitude of Philadelphia, I am informed by Mr. Joseph Pierce, and other inhabitants of that tract, the snows are much more deep and durable, than at this place; and, Indian corn planted as early as the tardy arrival and establishment of genial weather will permit, is frequently overtaken by autumnal frost. This is strictly true, however, only on the prairies; where the unobstructed and rapid progress of the winds produces great evaporation, and consequent coldness.

At Fort Wayne, which is situated in a prairie, about 41 deg. 10 min. north, it appears from letters from Dr. Abraham Edwards of the army, that in the winter of 1808-9, the surface of the ground was covered with snow from the 1st of December to the 1st of April; whilst during the same period at this place, very little snow, but much rain fell; that on the 2nd of January in the same winter, at sunrise, the thermometer was 17 deg. below cypher, and that at 10 o'clock, A. M. on the 24th of the same month, it was 3 deg. below cypher; whilst at the same period, on the former day at this place, the thermometer was nearly 2 deg. above, and on the latter about 10 degrees. That on the 21st March of the same year, at that place, the snow was 14 inches deep, and the Miami of the Lake was closed up with a heavy body

* In *guessing*, this ingenious traveler was not always fortunate, or else he would have lessened the heat of the atmosphere, and increased that of the river, which is not as he stated, 60 or 70 deg. in the summer, but 80 deg. or more.

of ice; whilst at this place, no snow covered the ground, and the thermometer rose as high as 40 degrees. The great coldness observed at Michilimackinac by maj. Swan, and at Hudson's sea by Umphraville & Robson, places, however, west of this meridian, is well known.

It would be incorrect from such desultory facts to draw any general conclusion: they however render the opinion mentioned above, probable, and at the same time extend the comparison between the temperatures of the eastern and western states. They show that the parallel of 41 deg. in our meridians, as in those of Pennsylvania, is the southern limit of steady cold.*

What are the variations of standard temperature, as we advance along a parallel of latitude from the foot of the Alleghenies to the Stony mountains? Future observations in various places can alone determine this. Two or three facts may be mentioned, however, which would induce a belief that it does not at least get warmer, as we advance westwardly. The Wabash and Mississippi freeze over in one night in lat. 38 deg. and lieut. Symmes informed me, that in 1809, the Arkansas froze over in one night, and continued frozen for several days. These facts however, are inconclusive, and we must patiently wait for future contemporaneous observations.

That our climate has undergone a change, is a popular, and with many, a favorite opinion. The regular observations made here at an early period, are too few and desultory to determine this point accurately; and many of them cannot now be had. The deficiency however, has been supplied in part, by conversation with numerous intelligent persons long resident here, and by an abstract obtained from governor Sargent, through the politeness of maj. John Brownson. The conclusion to be drawn from the whole of which, is, that our summers are about the same, our winters nearly the same, though *possibly* somewhat colder.

The winters between 1785 and '91 are stated to have been uniformly mild. The winters of 1792-3, '95-6, '99-1800, 1805-6, and 1809-10 were also very mild. That of 1791-2 was severe, with deep snow; that which fell in January only, amounting to 24 inches. On the 23d of that month, the thermometer was 7 deg. below 0. The

*See Rush's Inq. & Obs.

winter of 1796-7, is universally considered the coldest ever experienced here. On the morning of the 8th of January, according to gov. Sargent, the thermometer was 18 deg. below 0, and in the course of the month it was below that point, 4 other mornings. The Ohio that winter was shut up with ice four weeks, and frost occurred as late as the 22d of May. The winters of 1798-9, 1803-4, 1804-5, 1806-7, and 1808-9, were all severe, but not as intense as that of 1796-7. Of the other winters since 1790, nothing certain can be learned: but, it is believed, that they were temperate.

Of the summers since that time, less can be collected than of the winters. The prevalent opinion, however, is, that on an average, they are neither cooler nor warmer than formerly. The summer of 1808 was excessively hot, while that of 1809 was temperate and pleasant.

Respecting spring and autumn, not much early information can be obtained. But it appears, from the manuscript furnished by gov. Sargent, that the latest vernal and earliest autumnal frosts in 1792, 3, 4, 5, 6, 7, and 8, occurred about the same time that they were observed to occur in 1807, 8, 9 and 10.

From these data, although not so numerous as could be wished, we may conclude, that the temperature of our climate is now nearly the same that it was 15 years ago: for warm and cool summers have lately occurred, and mild and severe winters succeeded each other before the year 1800, as well as since. If, however, these conclusions be rejected, and our winters and summers still be considered more intense than formerly, the cause must be sought in the partial felling of our forests; which admits the N. W. and S. W. winds, the principal sources of cold and heat, to move with increased velocity. And if so, I would say that just as much change has taken place as this cause can produce; which cannot be very considerable, for the face of our country is as it were, only dotted with farms. In future, as Mr. Volney has conjectured, the more unobstructed progress of the S. W. wind will continue to increase the heat of our summers; but the increase of cold will probably cease at no very distant period; for whenever the forests of the territories N. W. of this are cut down, an amelioration of our winters must be the consequence.

2. WINDS.

The intimate relation between the temperature of a country and its winds renders it necessary to treat of them as nearly in connection as possible. The subjoined table shows pretty accurately the proportions of our different winds in 1809; but except it, this article will contain but inconsiderable additions to what has been before published by others.

719 observations were made, of which there were

	E.	SE.	SSE.	S.	SSW.	SW.	W.	WNW.	NW.	NNW.	N.	NNE.	NE.	ENE.	Calm.
In Jan.	0	03	00	4	00	17	2	0	23	0	2	0	07	0	00
Feb.	0	08	00	0	03	11	7	0	11	2	1	0	17	0	00
Mar.	1	01	07	3	01	16	11	1	10	1	0	3	05	2	00
Apr.	3	08	00	0	00	20	05	0	08	1	0	1	13	0	00
May	0	07	00	3	00	14	07	2	13	0	3	0	10	0	03
June	0	02	00	1	00	31	01	0	04	2	2	4	09	0	06
July	0	10	00	3	00	14	03	2	05	0	8	0	14	0	06
Aug.	0	04	03	2	00	26	04	0	10	0	0	0	09	0	04
Sept.	4	05	00	6	00	14	01	0	07	0	0	2	11	0	09
Oct.	3	14	03	1	00	32	0	0	01	0	2	0	06	0	00
Nov.	1	10	2	2	00	08	06	0	08	4	0	0	10	0	07
Dec.	6	05	00	1	01	12	10	4	09	0	0	0	00	0	14
	18	77	15	26	5	215	57	9	109	10	18	10	111	2	49

In the following table the proportion which each particular wind bore to all the rest, at this place in 1809, and also the proportion which each wind bears to all the rest in some of the Atlantic states, is exhibited. It obviously, however, cannot be the basis of any very correct general conclusions.*

Winds	Western States	Eastern States	Excess in West. states.	Excess in East. states.
E.	.268	.960	_____	.662
S. E.	1.137	1.111	.026	_____
S.	.600	.708	_____	.108
S. W.	3.200	2.127	1.073	_____
W.	.985	.703	.282	_____
N. W.	1.616	2.767	_____	1.151
N.	.565	.432	.133	_____
N. E.	1.632	1.194	.438	_____
Southern	4.937	3.946	.447	_____
Northern	3.813	4.393	_____	.580

*It was conceived that this could be most advantageously done by means of decimals. Ten was assumed as the whole of the observations and each fraction expresses the proportion which the wind, placed opposite to it, bore to all the rest. The observations were reduced to 8 principal points, and the 49 observations when it was calm were rejected. The Eastern observations, all made in the middle states,

With regard to the S. W. wind the following facts may be stated:—1. It prevails more than any other. 2. It commences, generally, sometime after sunrise, and ceases towards evening. If it continue after dark, more especially with any degree of violence, it indicates rain. 3. It seldom follows rain under 12 or 24 hours. 4. It attends, and indeed is the principal cause of our warmest weather. 5. It prevails more here than in the Atlantic states, and is one of the causes of this country being warmer than that, if it be. 6 Most of its phenomena are conformable to the beautiful theory of the very ingenious Mr. Volney, but numerous additional observations are still wanting.

Of the N. W. wind, it may be remarked:—1. It is colder than any other, and the longer it continues, the lower is its temperature:—2. At this place it comes from a region altogether south of the great chain of lakes; while in its passage to the middle Atlantic states, it travels over that chain, for several hundred miles. This fact shows the possibility of its being as intense at Cincinnati, as at Washington or Baltimore; although in reaching those places, it has crossed the rampart of the Alleghenies: For that it acquires heat from the lakes, is evident from the warmth of those places to the leeward of Erie:—3. It almost invariably follows rain:—4. It has not diurnal intermissions like the S. W. wind, but frequently blows throughout the night:—5. It sometimes brings rain, oftener snow, but in 9 cases out of 10, it is the harbinger, and indeed the cause of clear weather:—6. An inspection of the preceding table shows that if the same parallels be colder, on the eastern and western sides of the mountains, it is as much owing to the undue prevalence of the N. W. wind there, as to the predominance of the S. W. wind here. The surfaces of the Atlantic ocean, and the countries lying between it and the mountains are generally warmer than the mountains themselves, and hence W. and N. W. winds are readily produced:—8. It generally wafts forward our thunder storms, as Dr. Franklin long since remarked. It then, contrary to its usual manner, commences to the windward, and probably may be nothing but a deflected S. W. current.

were supplied by Williams' History of Vermont, and Jefferson's Notes on Virginia. The Williamsburgh northern observations were omitted as the extraordinary prevalence of the N. wind at that place has been supposed to be owing to some local cause.

Concerning the N. E. wind, the following facts may be stated:—1. It may reach this place without passing over any part of the Allegheney mountains, by traveling from the mouth of Davis' Straights, over the river St. Lawrence, Lake Ontario and the eastern end of Lake Erie:—2. It invariably produces rain, or snow, or at least cloudy weather, but not to such a degree as in the Atlantic states:—3. It generally commences in the night, and is commonly nothing more than a gentle but steady breeze; sometimes however (more especially it is said, within 2 or 3 years) it is driving and impetuous. 4. When this wind begins to blow, if the thermometer be high, it sinks; if very low, it rises.

The E. and S. E. winds pass over the Alleghenies in reaching this country. They no doubt deposit much of their moisture on those mountains, but still they almost invariably produce rain or snow.—During the night of the 16th of March, 1810, there fell 5 inches of damp snow; the S. E. wind blowing gently during that period, and for most part of the preceding day.

The S. wind may be considered stormy. It is generally impetuous, and as Mr. Tolney has remarked, almost certainly produces lightning. The cause of this curious phenomenon has not yet been developed.

Cotemporary observations at various places, in the courses of our different winds, would probably show, that the southern generally commences to the windward, and the northern to the leeward; and hence, that one division of them is produced by an a posteriori, and the other by an a priori cause. The northern winds we know commence to the south, and it is inconceivable that a volume of heated tropical air should move northwardly, without a *propelling* cause. Whether the east & west winds have their origin to the leeward or windward, is uncertain. The former is *probably* governed by the same laws with the N. E. for it is generally moist & cool, but the character of moistness belongs also to the S. E. wind, so that it is impossible that the E. has sometimes the same origin with the S. E. The west wind, a very pleasant one, may sometimes be a N. W. at other times a S. W. diverted from its proper direction: or it may be compounded of N. W. and S. W. currents which have

impinged and taken the diagonal of their former courses. The S. E. is one of the principal winds of this country, and it possesses characteristics essentially different from the S. and S. W. in as much as it seldom brings thunder, but precedes and attends moderate continued rains. There can be little doubt, from analogy, and from the facts collected by the learned Dr. Mitchell,* but it is a windward current. Accurate observations, however, at the same time, from Charleston to this place, St. Louis, Detroit, &c., are much wanted, and would be highly interesting.

3. WEATHER.

It is difficult to express the proportions of clear and cloudy weather by figures, but the following summary of observations in 1809, is probably worth insertion. In that year, there was an unusual proportion of cloudy weather, and although an uncommon quantity of rain did not fall, it rained very often. The 6th and 7th columns do not, as probably they should, express only those days on which it rained or snowed somewhat copiously; but they express also several sprinkles of both kinds, which were inconsiderable.

	<i>clear.</i>	<i>cloudy.</i>	<i>variable.</i>	<i>hazy.</i>	<i>foggy.</i>	<i>rain & mist.</i>	<i>snow, thnnder & sleet & lightning. hail.</i>	<i>quantity of rain & snow in inches.</i>
Jan. 6	15	10	—	—	4	4	2	4.6
Feb. 3	23	—	2	—	8	11	4	5.6
Mar. 9	11	11	—	—	9	9	3	3.1
Apr. 10	7	11	2	2	12	—	6	3.4
May 14	5	9	3	2	4	1	2	4.6
Jun. 15	4	11	—	11	7	—	14	2.8
Jul. 21	7	3	—	10	11	—	4	2.4
Au. 16	3	11	1	12	5	—	4	2.2
Sep. 24	—	6	—	23	2	—	1	.8
Oct. 20	4	7	—	17	2	—	—	.5
Nov. 8	12	8	2	2	2	1	—	1.9
Dec. 11	16	4	—	—	9	3	1	6.
	—	—	—	—	—	—	—	—
157	107	91	10	79	75	29	41	37.9

Greatest quantity of rain in 24 hours, December 4th, 3.3 inches.
Deepest snow 5 inches.

*See Medical Repository.

No Pluviometrical observations were made at this place, previous to 1809; and I have to regret that those made during that year, and stated in the last column of the above table, are not very accurate. The pluviometer was nothing but an accurately cylindrical tin vessel, of sufficient depth. It was kept in a proper situation, and the water emptied immediately after every rain or snow, kept to the end of the month, and then measured. The column annexed above, if it do not accurately express the quantity of rain during the year, indicated pretty correctly the relative quantities in the different months.

The fogs of the Ohio and its waters are dense, but they rarely continue till 9 o'clock, A. M. They are most constant in June, July, August, September, and October.

The dew in this country is said to be more copious, and the quantity of atmospheric humidity greater, than in the Atlantic states. No comparable hygrometric observations, have, however, been made in the two countries, under circumstances precisely similar; and till that is done, a correct conclusion cannot be drawn. It is highly probable, that on the borders of Lake Erie, and in the depths of those forests which cover level land, the quantity of moisture is greater than in the cultivated portions of the Atlantic States; but a fair comparison cannot be made under circumstances so dissimilar.

The quantity of snow in this country is considerably less than in the Atlantic states in the same latitude; and this is one of the circumstances in which the two countries differ most materially. The E. and N. E. winds, which bring such deep snows east of, & on the Allegheny mountains, in consequence of passing that elevated tract, or from some other cause, produce far less here. We seldom have falls of snow to exceed 6 inches; and generally they are not upwards of four. It is uncertain whether the E. and N. E. or the N. W. produce the deepest snows. The snow which does fall, seldom lies very long, nor are our streams long covered with ice, for our winters are nothing but a succession of mild, and intensive severe weather: So that although their mean temperature be low, the frequent occurrence of transient periods of mild weather counteracts the more powerful operations cold.

We invariably have frost about the termination of the first week of May, and sometimes as late as the end of the third

week. Inconsiderable frosts occasionally occur in autumn, as early as the equinox or before; but the more severe ones are not felt till the 15th or 20th of October. There are, however, great differences between different seasons in this respect. On the night of the last of August, 1789, the Indian corn in the northern parts of Kentucky was greatly injured by frost; and on the night of the 9th of the same month, in 1809, frost was observed in the vicinity of this town.

In the evening, during the summer, our horizon is frequently illuminated with broad obtuse flashes of lightning, which are unattended by thunder or rain. In 1809 the most conspicuous of these appearances were noted; which is the reason that the 8th column of the preceding table contains so many figures.

No barometrical observations have yet been made, or at least published, in this country.

4. CALENDARIUM FLORAE.

Calendaria Florae furnish interesting indications, respecting the influence of climate, upon vegetables, and the lower orders of animals. They, however, do this imperfectly, unless they be kept for several successive years, and the aspects, elevations, and qualities of the soils in which they grow be noted. They must also, as was long since done, be accompanied by certain meteorological remarks, otherwise they frequently exhibit, upon a comparison with each other, considerable contrariety. For the accession of mild weather, in the latter part of winter, or early in the spring, may bring forward vegetation rapidly, for a time; but the occurrence of colder weather may at length suspend its progress to a very late period. This was the case during the present spring. The later part of February was so mild, that the maple and elm began to flower, the rose and weeping willow to leave, and the buds of numerous other vegetables to swell. March, however, nearly suspended these interesting operations; and it was reserved for the genial month of April to revive and nearly complete them, with a rapidity and luxuriance the most unrivalled.

The following fragment, as far as it extends, may serve to indicate the progress of vegetation, in this part of the valley of the Ohio in 1809. Upon comparing it with similar ones kept in 1807 and 8, the dates appear to hold nearly a middle place between the dates of those two years; being in most stages of Spring, about 10 days earlier than the first, and 10 later than the last. There is a difference between this valley and the adjoining upland country probably of 3 or 4 days, except on southern declivities.

As the meteorological observations made during that year have been already detailed, they will not be stated in the calendar.

CALENDARIUM FLORAE. 1809.

- Feb. 27 Flower buds of the water maple (*acer rub.*) swollen.
Do. peach & lombardy poplar beginning to swell.
- March 1 Bees out of the hive.
Wild pigeons (*col. mig.*) geese and ducks (*anas can. et bos.*) returning northwardly.
- 4 Flower buds of the water maple beginning to open.
Commons becoming green.
- 5 Buds of the weeping willow (*s. babylon.*) swelling.
Frogs (*ranae*) sing.
- 9 Buds of the weeping willow unfolding.
- 11 Water maple in full flower.
- 16 Gooseberry leaf buds beginning to open.
Grackle (*gracula quiscula*) arrived.
- 18 Flower buds of the elm (*ul. amer.*) begin to open.
- 25 Doves (*colum. carol.*) mourn.
- 28 Elm in full flower.
Lilac (*syringa vulg.*) beginning to bud.
- 29 Red-headed woodpeckers (*pic. erythro.*) arrived.
House flies appear.
- 31 Radishes, tongue-grass, peas and lettuce planted.
- April 3 Buds of the privet, (*ligust. vul.*) beginning to open.
Appletree buds beginning to open.
Lilac leaves unfolded.
Red currant buds beginning to open. [unfold.
- 4 Flower buds of the sugartree (*acer sac.*) beginning to
Bluebirds (*motacilla sialis*) building nests.
- 5 Purple martin (*hirundo purpurea*) arrived.
- 6 Lombardy poplars in full flower.
- 9 Quince leaves unfolded.
Peach blossoms beginning to open.

- April 9 Gooseberry shrubs in full flower.
 Sand swallow (*hirun. rip.*) arrived.
 10 Leaves of the sweet briar (*rosa rubig.*) unfolded.
 12 Red currants in flower.
 14 Sugartree leaves opening.
 Barn swallow (*hirun. urbica*) arrived.
 15 Peachtree in full flower.
 Weeping willow do.
 Catbird (*muscap. carolinensis*) arrived.
 Tonguegrass fit for the table.
 16 Dandelion (*leonto. tarax.*) in flower.
 Peartrees in full bloom.
 Lombardy poplar leaves unfolding. [9th inst.
 Oats (*avena*) and flax (*lin. usita.*) sowed since the
 20 Appletree in full flower.
 Chimney swallow (*hirun. rust.*) arrived.
 23 Quince in full bloom. [its leaves.
 Black locust (*robin. pseud.*) beginning to expand
 24 Monthly strawberries beginning to flower.
 Lilac in full flower.
 26 Althaea leaf buds beginning to open.
- May 3 Radishes fit for the table.
 9 Dogwood (*cornus florida*) in full flower.
 12 Racemes of the black locust full grown.
 16 Saw nighthawks (*caprim. amer.*)
 White clover beginning to flower.
 18 Blackberry (*rubus occiden.*) beginning to flower.
 Blacklocust in full flower.*
 Indian corn (*zea mays*) planted.
 20 Woodbine (*lonicera caprifol.*) beginning to flower.
 21 Peas fit for the table.
 25 Poplar (*liriden. tulip.*) in full flower.
 Rye (*secale*) beginning to flower.
 28 Sweet briar beginning to flower.
- June 2 Privet beginning to flower.
 4 Red currants beginning to ripen (plentiful.)
 10 Black mulberries (*mor. nig.*) begin to ripen.
 15 Elder (*sambu. canad.*) beginning to flower.

*It is highly probable that the flowering of this beautiful tree, the *Robinia Pseudacacia* of Linnaeus, indicates the proper time for planting that important vegetable the Indian corn. For several successive years I have observed our farmers generally, to plant the corn during some stage of its flowering. This is from the 10th to the 20th of May.

- June 15 Jamestown weed (dat. stram.) beginning to flower.
 16 Flax beginning to flower.
 20 Raspberries (rub. idaeus) ripe (plentiful.)
 24 Cherries (prun. cer.) ripe (plentiful.)
 Timothy (phl. prat.) harvest begun.
 26 Mullein (verbas. thap.) in flower.
- July 4 Rye fit to reap (good crop.)
 7 Poke (phytol. decand.) beginning to flower.
 12 Althaea in flower.
 Blackberries ripe.
 Wheat (triticum) fit to reap (generally good.)
 23 Indian corn beginning to flower.
 24 Oats fit to reap (heavy crop.)
 28 Indian corn in full flower.
- August 1 Eupatorium perfoliatum beginning to flower.
 4 Unripe Indian corn in market.
 9 Early peaches ripe.
 14 Aesculus flava beginning to defoliate.
- Sept. 4 Wild pigeons beginning to arrive from the north.
 13 Lombardy poplar beginning to defoliate.
 20 Wild pigeons numerous.
 26 Woods variegated.
 29 Wild geese arrive.
- Octr. 20 Woods highly variegated.
 But few trees have yet entirely lost their leaves.
 30 Indian corn ripe (great crops.) [ting.
- Nov. 5 Black locust, apple tree, and cherry trees defolia-
 9 Woods almost leafless.
 22 Weeping willow leaves killed by the frost.

ERRATA.

- Page 3, line 1, of the Prefatory Remarks, for "Flora," read Florae.
 6, 8, from the bottom, for "maple," read maples.
 do. 15, for "triacunthos," read triacanthos.
 22, 21, for "cosidered," read considered.

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the Historical and Philosoph-
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C I N C I N N A T I O H I O



Vol. III, 1908, No. 2
APRIL-JUNE



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A P R I L — J U N E

Notices Concerning Cincinnati

BY
DANIEL DRAKE

PART II.

*A Page-for-page Reprint of the Pages Twenty-nine to Sixty
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COMMITTEE IN CHARGE OF PUBLICATION

CHARLES T. GREVE.

MERRICK WHITCOMB.

IV. *Condition of the Town.*

The well established fact, that customs, manners and habits exert a decided modifying influence on diseases, renders it necessary, before proceeding any farther, to exhibit a concise statement, the items of which, abstractly considered, are insignificant, but taken aggregately, appear to be of too much moment to be omitted.

CINCINNATI was laid out in 1789. The first emigration was in the preceeding year. About two-thirds of the houses are in the 'Bottom', the rest on the 'Hill'. It is in squares of 396 feet. The streets, except Broadway (which is an hundred) are 66 feet wide. They intersect each other at right angles, and the meridional vary 17 deg. W. from N. This cannot be considered so favorable to ventilation as an eastern variation, for our prevalent winds are in a line running from S.W. to N.E. None of the streets are paved. Alleys are not numerous. There is no permanent common, except an inconsiderable one between Front-street and the river.— Along some of our side walks trees are planted, but they are not sufficiently numerous. The absurd clamor against the caterpillar of the Lombardy poplar, caused many trees of that species to be cut down; and at present the white flowering locust very justly attracts most attention: it should be cultivated still more generally.

The number of dwelling houses is about 360. They are chiefly built of brick and wood: a few are of stone. Scarcely any are so constructed as to afford habitations for families beneath the surface of the ground; and not many are built with porches.

The town contains two cemeteries. One is for the interment of the deceased of all denominations. It lies between Fourth and Fifth streets, nearly in the centre of the hill population. It has been a common receptacle for the town, for strangers and for the troops in Fort Washington, previous to the erasement of that garrison, since the first settlements here. Its area is something less than half a square. The other place of sepulture is designed for the use of the Methodist society. It was established about five years ago, in the N.E. quarter of the town, on the hill.

There are eight brick yards. They lie in the western part of the Bottom, near the second bank, which is the lowest portion of the site of the town. They abound in pools, the water of which has been drained from almost every part of the town.

The shambles of our butchers are fixed on the bank of Deer creek, to the N. and N.E. of the town. The tanneries are in the same direction.

The population of Cincinnati and its suburbs is 2320 souls. Of which number 1227 are males, 1013 females, and 80 are negroes. The number of children under 16 years is 1051. The number of persons over 45 years is 184. The number who have attained to the Scriptural limit of human life, three score and ten, is not known; but as men who have passed 60 years of age, do not often emigrate to new and distant countries, instances of great longevity are not to be expected here. Indeed from the recent settlement of this place, few or none of its adult inhabitants are its natives. They have emigrated from every state in the union, and from most of the countries in the west of Europe; more especially Ireland, England, Germany and Scotland. The American emigrants have been supplied principally by the states north of Virginia.

A population derived from such distant sources, and so recently brought together, must necessarily exhibit much *physical*, as well as moral diversity. The climate and soil have not yet introduced an uniform constitution of body; nor customs, manners and laws an uniform moral character. The inhabitants are generally laborious. By far the greatest number are mechanics. The rest are chiefly merchants, professional men, and teachers. Wealth is distributed more after the manner of the northern, than southern states; and few or none are so independent, as to live without engaging in some kind of business.

A great portion of the inhabitants are temperate. There are not a few, however, who daily but quietly become intoxicated, and no *very* inconsiderable number have been known to fall victims to that habit. Whiskey is in universal, but not exclusive use, among the intemperate: beer and cider are generally drunk by those of more sobriety. Well water is generally drunk in the summer; and used otherwise by a few, throughout the whole year. But the water of the river drawn up in barrels, is employed for all domestic purposes

by far the greatest number, and is drunk throughout half the year by at least half the inhabitants.

The use of tobacco, among the male sex, is much too general. It is not confined to those who might derive benefit or comfort from it, but extends, with the usual number of exceptions, to all ages, from ten years old, upwards.

The diet of the inhabitants is similar to that of the people of the other middle, and eastern states. Green tea and coffee are in general and extensive use. Fresh meats are eaten in great quantities. Beef, more especially in the summer and autumn, is used to the exclusion of most other meats, in a great many families. The market is well supplied with culinary vegetables. Fermented wheat bread is in very general use. It is commonly eaten fresh, but *hot* bread is much seldomer served up here, than in the southern states. Indian corn bread is by no means uncommon. Rye is almost unknown as an article of food. Fish are not a principal article of diet, though the river affords many.

The dress of our inhabitants is similar to that of the other inhabitants of the middle states. The females injure their health by dressing too thin, and both sexes by not accommodating the quantity of clothing to the changes of the weather. The amusements of balls and other evening parties, so destructive to female health in all parts of the United States, are engaged in here, but not to remarkable excess.

No natural or artificial mineral waters are used here in the summer; nor are there any artificial baths. Bathing in the river is practiced by some, but is less regular and general than it ought to be.

V. Diseases.

Having, in the preceeding sections, taken a cursory view of the physical condition of Cincinnati and its vicinity, we are now prepared for a few enquiries respecting the diseases of its inhabitants. These enquiries, however, will be limited to the fulfillment of a promise, incautiously made, upon distributing the previous sections of these memoranda; before the magnitude of such a work as the Medical History of a new region was fully appreciated. Nothing more, therefore, will be attempted, than briefly to indicate the principal endemic diseases, and their supposed sources.

MIASMATA.

From the topographical survey in the first section of these Notices, it will be readily seen, that Cincinnati is not *naturally* obnoxious to many sources of MARSH MIASMATA. The river beach opposite the town, is narrow, and, neither it, nor the bank exhibits much decomposable matter. The lower and back part of the bottom, afford some portions of ground, that are yearly overflowed by the spring rains; but they might be easily drained, and therefore may be ranked with the artificial causes, which may be always removed. It is to the inundated interval lands about the mouth of Mill-creek, that we are to look for the most prolific source of vegetable miasmata. This miasmata, however, affects the town much less than might be supposed, from the following causes:—1. The drowned lands lie so much to the N.W. that through the summer and autumn the town is but seldom to the leeward of them; the prevailing winds then being from the S.W. During the present autumn, when few or no cases of ague and fever existed in town, a great number of the inhabitants, to the leeward of those grounds, experienced that disease. 2. Of that tract, a large proportion is covered with trees. It should have been left, as nature prepared it for us, *entirely* covered. Where a tract of wet ground can be rendered *permanently* dry, it should be cleared and cultivated; but when it is subject to annual inundation, the case is different. The more completely the

rays of the sun are then intercepted, the lower will be the temperature of the earth's surface, and the less the quantity of noxious gas evolved. 3. Between those intervals and the town, grows a forest of tall trees. There are strong reasons for believing, that the poisonous exhalation from marshes is hydrocarbonate.* Now this substance is readily decomposed by vegetables.† But whether the gas evolved, be a hydrocarbonate, or according to our very ingenious countryman, Professor Mitchell, an oxyd of septon,‡ (which latter substance, however, it has not, I believe, been proven, is decomposed by vegetables) the efficiency of trees in intercepting its progress, and destroying its virulence, is established by numerous authorities.§ This forest should, therefore, be considered in the light of a rampart against a perpetual enemy, and preserved in the most sacred manner.

The artificial sources of miasmata, are not more numerous than the natural, but they are much more operative. The back part of the bottom, throughout its whole length, is a 'hot-bed' of animal and vegetable putrefaction. In some places, it is true, the ground has been raised (not with any regard to health, but to render it cultivable) those parts, however, make much the smallest proportion. The eastern end of this slip of low ground is a broad shallow canal, which conveys the water that falls on the site of the town, saturated with nuisances, to the pits of the brick yards; from whence neither it, nor the putrescent load can escape, except in the form of exhalation or gas. For its escape in this manner the heat of our summer sun, increased by the reflection from the contiguous high bank, is amply sufficient. Upon learning this state of things, observing and reflecting men, who have been accustomed to trace the acknowledged connection between endemic fevers and the spontaneous decomposition of animal and vegetable matter, would not hesitate to pronounce, *a priori*—That our principal febrile diseases, and more especially the typhous affections that have, as will be stated hereafter, scourged us for a twelve month past, are most probably owing to the exhalations here spoken of. But to proceed cautiously, and avoid all possibility of

*See Chisholm on Fever, vol. 1.

†See Fourcroy's System of Chem. Knowl.

‡See Medical Repository.

§See the writings of Rush, Jackson and Barnwell.

error in our conclusions, it will be well to take some additional views.

Upon the settlement of this town, fevers of the typhous kind were not uncommon. They arose, as in all newly settled tracts, from the putrefaction which followed the destruction of the forest and exposure to the rays of the sun of a moist fertile surface. As this was a transient cause, the effect was not permanent, and a period succeeded, which was comparatively healthy. But this state of things was not very durable. The flood of emigration to this place, which commenced in 1805, required such a rapid increase of houses, and consequently of bricks, that in less than three years, the number of brick yards, which previous to 1805 did not exceed two or three, was augmented to eight. The accumulation of filth in those pits which were first dug, had been constantly going forward, so that the quantity of exhalation in 1809 and 10 may be estimated at more than ten times as much as it was seven years before. Now it is notorious, that during those years there occurred more malignant cases, of those diseases which are generally, but improperly termed putrid, than had presented themselves for the seven, or even ten preceding years. Further—These typhous affections prevailed most in December, 1809, but during that month not a single case presented itself east of Main-street, which nearly bisects the town. In the course of the ensuing year cases occurred in the other half of the town, more especially in the eastern end, which is to the leeward of a shallow pond, that has been a common receptacle of filth for more than ten years. The western parts, however, have still been more sickly than any others. Again—December, 1809, was a warm moist month, with southerly winds; and there was not only more sickness during that month than any other, but it occurred chiefly to the leeward of the ponds. Towards the close of January it became so cold that the mercury in Fahrenheit's thermometer sunk 7 deg. below 0, and not a single case of typhus occurred in the practice of either Dr. Allison, Dr. Sellman, or myself, for a month afterwards. February was mild, and in the beginning of March, the disease returned. It became more healthy in April and the first half of May, but the latter half of that month was intensely hot, and new cases immediately followed; some of them exhibiting symptoms of great malignity. The rest of the year was temperate, even cool, and cases of the same

disease have now and then presented themselves. Thus we see, that those inhabitants contiguous to, and to the leeward of the alledged sources of disease, have been its greatest victims, and that its appearance and disappearance have been considerably influenced by those states of the atmosphere, which were capable of affecting the progress of putrefaction. It is not believed, however, that this is the *sole* cause, that has operated in these cases. Sydenham, more than a century ago, unfolded the existence of sickly states, or constitutions of the atmosphere, during which all the acute diseases that occurred, appeared to partake of certain characteristics in common. Professor Rush, and some other American writers, have, with equal precision and greater science, pointed out the existence of such constitutions in the United States. An atmospheric temperament of this kind appears to have existed in this part of the country for some time past; its tendency seems to have been to favor the production of typhous diseases. This temperament is a predisposing cause. The exciting cause is the miasm or noxious exhalation of which we have been speaking; and wherever such an agent exists, whether in town, or in the adjoining country, these diseases may be produced.

From these tedious but necessary details, it is thought that the opinion of the insalubrity of those ponds is sufficiently corroborated; and it only remains to suggest the means of removing such a potent cause of disease. This is easily done. The gravel, sand and pebbles of the adjoining second bank, form a cheap, convenient and proper material for filling up the pits, except such as are necessary to furnish water for the manufacture of bricks; and it is earnestly hoped that such an important object will no longer be neglected.

Of our cemeteries, it may be remarked, that the one attached to the methodist church, from the limited number that are interred in it, will not very soon evolve much miasmata, and what it may ever produce is too much to the leeward of the town to be a general injury; but the case is different with that of the Presbyterian church. Whenever the population about *it* becomes dense enough to prevent a free circulation of air, and the interments have become double or treble what they now are, its exhalations must inevitably produce disease. No time, therefore, should be lost, in fixing on a new field for sepulture, without the pale

of population, whither the contents of the present should be removed.

The shambles of our butchers, and the tanneries, if they be sources of miasmata, are injurious only when the N. E. wind prevails. At present they have no perceptible agency in the production of our endemics.

These appear to comprehend all the sources of koino-miasmata, and it only remains in this part of the subject, to notice two or three cases of the production of idio-miasmata. Typhus fever has been observed, here, as in other places, to be produced by a domestic cause; for the generation of which, want of cleanliness and want of free ventilation, seem necessary. The latter however, probably has most efficiency. I have observed these circumstances to exist in healthy parts of the town without producing typhus, so constantly as in the sickly parts; so that the public and domestic causes seem sometimes to co-operate. In one instance of this kind, where a large family lodged in a close room of an old wooden house, which stood in the western part of the Bottom, one or two cases of typhus mitior, and two cases of malignant and fatal typhus gravior occurred, coterminously, during a warm winter month. Means were employed to effect free ventilation, and no new cases appeared. It is from such instances as these, that the opinion, that typhus is infectious, has arisen. I can assert from observation, that it is not. I have never seen it extend to more than one or two, in a house that was clean, well ventilated, and its inhabitants were lodged in separate apartments. But it is unnecessary to urge facts against an hypothesis that is already exploded.

If the constant use of fresh beef, and other unsalted meats, in the summer and autumn, be a cause of disease, it must be noticed in this place. But it has not appeared from observation, that they have had much agency in producing the intestinal affections which have prevailed here. Vegetable aliment may produce the exciting cause of that kind of head-ach which depends on the presence of acetous acid in the stomach, provided that organ be previously debilitated; and if the stomach and intestines be in a state of debility, fresh meats may suffer spontaneous decomposition, the oxyd of septon be generated, and all the varieties of intestinal disease produced. In this way, during the debilitating influence of a koino-miasmata atmosphere, the animal fibre received into the alimentary canal may be chemically decomposed, and

produce a disease of the dysenteric kind, which, without such an exciting cause, might have been a fever. In those cases, where a large number of persons have suddenly had dysentery, induced by eating fresh beef, it probably at first acted in a manner similar to that of any other article of diet, to which the stomach and bowels had not been habituated: it excited simple diarrhoea, this debilitated the digestive organs, the production of septic oxyd ensued, and the phenomena of dysentery followed.

VARIATIONS OF ATMOSPHERIC TEMPERATURE.

Neither the cold, nor heat, of the climate of this country, appears to produce many diseases. The former is sometimes so great as to freeze the extremities of those who are exposed; but death has seldom or never been produced by it. Goitre and scurvy, if they be dependent upon cold in other latitudes, are certainly not among its effects here. The heat of our summers appears also to produce but few diseases. The coup de soleil, or stroke of the sun is unknown; and death from the inordinate use of well water, so common in Philadelphia, from some cause is scarcely known here. Langour and oppression are, however, frequently experienced to a distressing degree, more especially upon the sudden accession of hot weather in May and June. Rashes, or cutaneous efflorescences of various kinds, appear to depend on the heat of the summer. Children are much more liable to them than adults. They are certainly diseases, but need not to be dreaded, as they are unattended with danger, and their presence *may* protect the system from more formidable complaints. Febricula, or inward fever, and anorexia, are not uncommon in the hottest weather, but they seldom outlive their cause, and do not often render medical assistance necessary.

But if the extremes of temperature separately, be comparatively harmless, at this place, their sudden alternation is a most fruitful source of disease. By those, however, who skilfully accommodate their dresses and domestic fires to these variations, but little bad effect is ever felt. But among the imprudent, the exposed, and those who are predisposed to the diseases excited by this cause, it produces the worst effects. In the spring and autumn, the diurnal variations, which are greater than in summer, tend to excite intermitting

and remitting fever, as has been remarked by Professor Rush. But this is among the most inconsiderable effects of this cause. In the muscles and membranes of the extremities, it produces rheumatism; in the face and throat, tooth-ach, pain of the jaw and decay of the teeth, catarrh, tonsilitis, &c. in the thorax, pneumonia, consumption, croup, &c. It moreover frequently co-operates with marsh miasmata, and produces a disease in which the phenomena, and the indications of cure, are considerably different from any disease produced by those causes separately.

Whether the effects of this sudden alternation be always in proportion to its degree is doubtful. I have observed a great variation sometimes to occur without corresponding bad consequences: other states of the atmosphere may possibly modify its effects.

Changes from heat to cold, appear to be more prejudicial than those of the opposite kind. One reason of which, probably, is, that the system relieves itself from the effects of a sudden application of heat, by perspiration, but possesses no such resource in the other case.

The natural tendency of this cause seems to be to produce diseases that are *purely* inflammatory; but the winter of 1809-10 furnished opportunities of observing, what had been remarked before by others, that there is in epidemic constitutions, a kind of omnipotency, as it respects other causes of disease. The pulmonary affections, of that sickly season were few, and bore the lancet indifferently.

MISCELLANEOUS ARTICLES.

Fogs are by many considered an active cause of disease. Dr. Jackson, in his Treatise on the Fevers of Jamaica, seems to have put this opinion in its proper light. A fog may be the vehicle of marsh miasmata, but is not of itself deleterious. It is nothing but elevated water, and can produce no effects beyond those of simple moisture. This a priori decision accords with fact, for in this town, those who are most exposed to the fogs, certainly are not more sickly than others. Both fog and dew, however, may be sometimes the *exciting* causes of fever. By conducting off the heat, and lessening *directly* the excitement of the system, they increase the excitability, and thereby augment the efficiency of miasmata. The internal use of river water has by some people been deemed

unhealthy. Its degree of saline and aerial impregnation, is certainly much less than that of well water, or even that of spring water; but there does not appear to be any just foundation for the opinion of its insalubrity. It produces, so far as observation can determine, no disease, excepting diarrhoea in those unaccustomed to it, which is nothing more than spring and well water produce on those who have been habituated to the use of river water. The occurrence of that disease, is no proof therefore, of the unhealthiness of any water. In some diseases, however, although the river water be not positively unhealthy, the greater benefit resulting from the use of well water, makes it seem so. These are cases of dyspepsia. In this disease the carbonic acid, the carbonates, and other salts of the well water produce very salutary effects. A lady in this town has repeatedly had all the symptoms of dyspepsia aggravated and palliated, by the alternate use of river and well water.

Before concluding the consideration of the causes of disease, it may not be amiss to observe, that some progress has been made, in the discovery of the cause of the endemic disease, announced in the appendix, to the sections of these Notices, which were printed last spring. The people who live where it prevails, are of opinion, that the milk of the cow is poisoned by some unknown deleterious plant on which the animal feeds. It has not yet been discovered; but the experiments which have been made, and the facts which have been collected, seem almost sufficient to command our full assent.

MIASMATIC DISEASES.

In specifying the diseases of this place and its vicinity, it will be proper to commence with those endemics which are ostensibly excited by miasmata. They are the following:—Ague and Fever, Periodical headach, Intermitting and Remitting bilious fever, Typhus mitior and gravior, Cholera morbus, Cholera infantum, Diarrhoea, Dysentery, Jaundice and Ophthalmia.

AGUE AND FEVER. A tertian ague has been considered the simplest form of fever; and if unity of cause, greater regularity in the trains of diseased action, and more uniformity in the disorders consequent upon those trains, entitle any febrile affection to a character of greater simplicity than the rest, it certainly belongs to this disease. Its legitimate cause

appears to be generated by the decomposition of vegetable matter alone; its empire in the system is more limited than that of most fevers; and the same consequence, dropsical effusion, more constantly results from it, when protracted, than almost any consequence from any other disease. In a series of notices, therefore, respecting our endemics, this disease constitutes the most proper commencement.

In the adjoining state, Kentucky, the thirsty calcareous ridges and dry narrow valleys are unfavorable to the production of ague and fever, and it is but seldom felt, except in the vicinity of some of the larger streams. But in this state, especially in the central, northern and western parts, a leveler surface, with a diminished quantity of calcareous and an increased proportion of argillaceous matter, admits of a more frequent production of this disease. Even here, however, it is rarely fatal; and except in a few situations, its prevalence or malignity has never rendered it a serious evil, nor retarded in any perceptible degree, the current of emigration.

Concerning its symptoms, but little need be said. It generally assumes the quotidian type; sometimes the tertian, and more rarely the double tertian, or quartan. When left to itself, it commonly produces hepatic affections of a mild kind, with ascitic or anasarcaous effusion; but under the ordinary treatment, it seldom proves obstinate, except where its remote cause continues to act. In such cases, when the removal of the patient has not been attended to, it has sometimes resisted the combined action of the most powerful remedies, and proved fatal. Emetics, cathartics, and the bark, with opiates and gentle diaphoretics, are generally found sufficient. In a case of protracted quotidian, the cold fit of which was so intense as to threaten life, my respectable friend and preceptor, Dr. Goforth, administered 4 oz. of the bark in substance, during a single apyrexia. The patient recovered.

With arsenic, exhibited according to the formula of Professor Barton, I have sometimes succeeded; and during the present autumn (1810) a gentle salivation, as suggested by Professor Rush, effected a cure in two cases, which had obstinately resisted many other remedies. The great tendency in this disease to produce hepatic affections, would seem to point out mercury as a principal medicine, in long continued cases.

PERIODICAL HEAD-ACH. As it is deemed correct to range with the ague almost any disease that has diurnal paroxysms, the "sun-pain" or periodical head-ach may be introduced here. In its most regular form, it consists of a pain in the lower part of the os frontis on one side, near the orbit of the eye, commencing early in the morning, and continuing through a part or the whole of the day. But these symptoms are not constant. There does not appear to be any inflammation in the pained part, and the arterial action is generally defective. The stomach and bowels are commonly overloaded with bilious matter. From observations at this place, it prevails more in winter than summer. It is generally sporadic; but in the winter of 1803-4 so many were affected with it, as to entitle it to the appellation of an epidemic. Antispasmodics are absolutely inadequate to the cure, as are also sinapisms and blisters. The latter, however, are a good auxiliary. Evacuations from the stomach and bowels with the subsequent use of the bark, as in ague and fever, are the most certain, and generally the only remedies necessary. I have never known it prove fatal. It does not appear to effect those of any age, sex, or condition, exclusively.

INTERMITTING AND REMITTING FEVERS. To make room for the anomalous affection of which we have just spoken, the higher grades of bilious fever have been arbitrarily separated from the ague, of which they are merely extended and more intense degrees—augmented effects of the same cause. The assertion, which was first made by that illustrious pathologist, Professor Rush, is amply supported by the phenomena which these diseases have exhibited at this place. From the simplest 'shaking ague', with a febrile paroxysm of two or three hours, to an intense bilious fever with a remission scarcely perceptible, I have observed symptoms of the same kind. In the ague the cold fit is considerable; in what is popularly called the dumb ague, and here denominated intermitting fever, the chilliness is less regular and violent, and in the more ardent remittent, the cold stage is feeble or wholly absent. The danger therefore is generally in an inverse proportion to the intensity of the cold stage. A diminution of both chill and fever is favorable, of the chill alone, unfavorable.

As it is only designed in these Notices to announce some of the principal phenomena of our diseases, a detailed account

of the symptoms of these fevers will not be attempted, and the following limited remarks may suffice.

They are invariably attended with an undue excretion of bilious matter. In the present state of pathological science, this excretion is not regarded as the cause of the disease, but it certainly produces some of the secondary symptoms, and aggravates the whole. It also tends to prevent the action of sudorifics, siaagogues and tonics, and I am convinced from experience, notwithstanding the plausible reasonings of that eminent chemist, Professor Mitchell, that it ought to be expelled from the system as early as possible. It has not been proven that the vitiated secretion of the liver contains soda; and if it do, in these cases it will probably be better to alkalize the alimentary canal by some more unexceptionable agent.

The state of the pulse in these affections at this place, has not appeared to vary *very* much. It is commonly full, frequent and tense, but seldom hard or depressed. It has frequently tempted to the use of the lancet, but not always with the anticipated benefit. Indeed our bilious fevers in most cases, although apparently of an inflammatory character, do not admit of copious venesection. For some time past at least, the tendency to typhus has been so great, that the lancet has been almost wholly laid aside. Every autumn is not however alike in this respect, and these diseases have occasionally been presented in a form that unequivocally indicated, and really required extensive bloodletting.

But venesection in these complaints is the only evacuant that is not uniformly beneficial. Emetics and cathartics, diaphoretics and sudorifics, diuretics and sialagogues are all of great consequence. The two first are indispensable. Emetics however cannot be safely employed where the degree of inflammatory action is great; but it appears to me that in the reformed practice of medicine in the United States they are by many physicians, too much neglected. I have repeatedly observed cathartics to fail evacuating the stomach, and in bilious fevers of the milder kind, one or two emetics would probably always be beneficial. The employment of this medicine, however, will not remove the necessity for cathartics; and in all cases they should be administered, and generally repeated till the discharges exhibit a healthier aspect. This is the method which has usually been pursued here, and with satisfactory advantage. It has not, however,

always been possible to procure good discharges, even where medicines, to supercede morbid action, have been employed at the same time. Such cases have usually proved fatal. The choice of cathartics has not been deemed a matter of great moment, provided calomel be not omitted. From the disordered state of the biliary system in these diseases, that medicine seems to be peculiarly required. It is also required as a sialagogue; and when it can be made to produce a good salivation at the same time that it evacuates the bowels, it does all that can be expected from medicine—it invariably cures the patient.

Sudorifics and diaphoretics have been employed in these fevers, after due evacuation from the stomach and bowels, and from the blood vessels in some cases, with manifest advantage. And diuretics have been frequently found serviceable. It appears to me that sal nitre, which in the quantity of a scruple or half a drachm every hour, is no contemptible remedy in the milder bilious fevers, produces its good effects chiefly by operating as a diuretic. After sufficient evacuation and reduction of the tone of the system, the combination of opium with this salt forms a valuable sudorific and anodyne.

Blisters have been employed in these affections with the usual benefit.

Cases of bilious fever have occasionally presented themselves, in which the bark could not be taken even during convalescence; but in most instances, after due evacuation, that medicine has been found beneficial. In general, the probability of its being servicable, is in proportion to the violence of the cold stage. In some cases, where neither the chill nor fever was considerable, I have seen cream of tartar and the bark combined, given throughout the whole twenty-four hours with evident advantage. But these cases should be properly referred to the ague and fever.

Having found but little good effect from nitric acid in other diseases, I have never tried it in bilious fever.

TYPHUS MITIOR AND GRAVIOR. These diseases seem to bear the same relation to each other that is observable in intermitting and remitting fever. They are also in this country closely connected with those affections, and furnish a good proof of the correctness of that pathological idea, which questions the doctrine of diagnostics. The difference between a case of inflammatory remittent, and one of typhus gravior, is indeed very manifest, but these are to be regarded

as the extremes: many of the milder cases are so complicated, that the pathognomonic symptoms of neither disease appear to predominate.

The more characterized cases of these typhus affections frequently exhibit nearly the same derangement of the biliary system with the fevers already noticed. But they are attended with many phenomena not common in those simpler affections, such as inactivity of the functions of the brain, oppression of the thorax, and the exhaustion of the muscular energy. They are also generally accompanied with diarrhoea, in which the discharges are constantly vitiated; and almost invariably with complete anorexia. In the more violent cases the pulse is small, intermitting and frequent, and the pains and anxiety of the thorax and abdomen are very great. In milder cases the pulse is fuller, but always frequent, and the restlessness gives way to profound stupor. The tongue is generally dry, and sometimes covered with a dark colored hard crust that appears cracked into fissures. In two cases there occurred an eruption of pimples, which in a few hours became filled with pus. They both proved fatal. Concerning their other phenomena, the limits of this work will not admit of any detail.

As these diseases consist in a more extended series of morbid actions, than those we have before considered, they are of much more difficult management, and have not unfrequently proven fatal at this place, during the last two years. Before that time they occurred more seldom. Their cure has been attempted nearly in the same way with that of the bilious fever, except the early administration of tonics and stimulants, and the total omission of venesection.

These medicines, with mercury and cold water, would probably in most cases effect a cure, could they be retained in the system; but the tendency to diarrhoea has generally been so great as to preclude the copious exhibition of sudorifics or of mercury, and require the constant use of astringents, demulcents, and alkalies. Of the former class of medicines, saccharum saturni and geranium root (*geranium maculatum*) have been employed with most advantage. Of the latter, the alkaline earth, magnesia alba, has been commonly preferred. When mercury has not been employed, these complaints have generally had their full course, the typhus gravior a shorter, the typhus mitior a longer one. The ordinary remedies in many cases appear to have saved life, but not

cured the disease. Mercury, however, has done both. In the few instances in which a genuine salivating effect has resulted, the disease has yielded and the patient recovered, some cases have occurred in which mercury ulcerated the mouth without producing ptyalism, and then it did but little service.

Blisters have been a constant remedy in these typhus affections. Much advantage has frequently resulted from them; but it has been considerably diminished, by the strong tendency to gangrene which the blistered places, in a great number of instances, have shown. Among the effects of blistering in a case of typhus mitior, may be mentioned the total suspension of a copious ptyalism attended with sore mouth, for two days, and its return upon the cessation of inflammation in the blister.

A *local* application of cold water has been frequently made, with obvious advantage. But a general affusion, as recommended and practised by several ingenious physicians of the present day, has never been resorted to here. Many cases of our mixed fevers, appear to be very analagous to those in which Dr. Jackson found the cold affusion so beneficial; but at this place medical intrepidity has heretofore yielded to the invincible prejudices of the people. In May, 1810, I had a case of typhus mitior, in which the patient was exposed, covered with a single sheet, to a constant and copious current of fresh air, except a few hours of the latter part of the night: His recovery, which was unusually rapid, appeared to depend much more on that than on the medicines employed.

CHOLERA MORBUS & CHOLERA INFANTUM. These affections having essential symptoms in common, and probably depending on a similar mode of action of the same cause, may be considered together. Their phenomena, however, are not perfectly identical. The first is generally a disease of adults. When it has appeared at this place, it was attended with inconsiderable fever, but with copious billious discharges, and ultimately with spasms and cramps. It has usually terminated in health in 24 or 48 hours. The cholera infantum is commonly attended with fever, which is sometimes intense; the discharges are not uniformly bilious; stupor and insanity are apt to supervene; it sometimes terminates in health, or in death, in two or three days; but generally has a protracted course, producing, with great debility,

a peculiar, sunken and languid state of the eyes. These two varieties of cholera agree, however, in being apparently excited by an irritating material, exerting a strong impression on the stomach and duodenum.

The former of these diseases is much rarer at this place than the latter. It appears sporadically during the warm part of the year, but has never yet been epidemic. Of its treatment I have nothing to observe, except that in one protracted case, in which the discharges were very bilious, a salivation, induced, principally, by mercurial frictions, suddenly removed all the symptoms.

The Cholera Infantum prevails every summer, in this town and its vicinity, and may be regarded as the principal disease to which our children are liable. As in other parts of the United States, it precedes the other summer and fall endemics, generally beginning in June, and sometimes much earlier. In this disease I have seen calomel in small doses, with, or without opium, according to the state of the pulse, as recommended by Dr. Miller, of more service than any thing else. Cold applications to the abdomen, and head, have also proved very advantageous. I have never tried the cold immersion, as practiced by some physicians. At the same time, that the refrigerating applications are made to the head, sinapisms to the feet have been useful. When the evacuations have been very copious, and the child's strength is very much reduced, calomel and opium, with a milk decoction of the geranium root are invaluable. This complaint, however, has frequently resisted the powers of these and other medicines, and either proved fatal in two or three days; or assumed a protracted form, and yielded to nothing but the frosts of the succeeding autumn.

DIARRHOEA & DYSENTERY. An epidemic diarrhoea, has never been known here. This disease, however, occasionally presents itself throughout the whole summer; and appears like the other endemial affections of the warm season, to depend on miasmata. Its cure has generally been attempted with rhubarb, and other cathartics, followed by alkalies, farinaceous preparations, geranium root, and other astringents; aided, in obstinate cases, by the cold bath, flannel next the skin, and exercise on horse-back.

The Dysentery is a more formidable disease. Every summer and autumn furnish sporadic cases of it, and in 1808 it was epidemic. In the month of July, of that year, it was

more prevalent, than any disease has ever been at this place, except the influenza. Fevers, during its predominance, were not observed to occur, and the simple diarrhoea and cholera infantum, which appeared cotemporary with it, did not long preserve their pathognomonic characters. Notwithstanding this power of banishing, or assimilating to itself other diseases, this epidemic was mild, and proved fatal in but few instances. It was not often attended with fever, and the appetite, generally, was unimpaired. The morbid cause appeared to exert a very limited power on the system, mucous and sanguinous discharges, with gripings, constituting the principal symptoms. Large portions of *Ol. ricin.* alternated with opium, or opium and ipecac, were chiefly relied upon; and when aided by amylaceous and glutinous preparations, were generally sufficient. When astringents were required, the geranium root was employed with success. The carbonates of potash and magnesia were exhibited in several cases, but not with very marked advantage. In the dysenteries of some parts of this country, however, they have been found more efficaceous. My friend, Dr. Canby, has employed them along with the usual remedies, with a success, as honorable to himself and his profession, as to the respectable Professor, who first pointed out their *modus operandi* in this disease, and insisted on their exhibition. The dysentery of 1808 was so mild, that calomel was scarcely resorted to. It had been epidemic previous to that year, but has not been since.

JAUNDICE. This is one of our endemics, but it is seldom very prevalent. Throughout the whole of the year 1808, cases of it presented themselves more frequently, than before, or since. It was generally attended with a dull pain in the pit of the stomach. I heard of its proving fatal in one case, in the vicinity of this town. In one instance it was connected with a slight eruption, and violent itching in the skin, attended with a synocha pulse, and required bloodletting. Generally the pulse was weak, and the whole system appeared to partake of the inaction of the alimentary canal. It affected adults more than children.

As a remedy for this disease, the puccoon root (*sanguinaria canadensis*) has been recommended by Dr. Schoepf.* The people in this part of the country employ a tincture of it.

*See Barton's Collections, part 1.

for the same purpose, and from experience I can declare it almost a specific. But I prefer giving it in substance.

OPHTHALMIA. On the arrangement of this affection among the miasmatic diseases, it is by no means intended to insist. The following are the reasons for which it was referred to that head, and physicians can estimate them, as they deserve. 1, The ophthalmia is an endemial disease of this country, which like our other endemics, appears sporadically every summer, and occasionally becomes epidemic, affecting great numbers, especially children. 2, It occurs as much, if not more, along our water courses, and in the depths of forests, as on open plains or uplands; and therefore neither dust, not reflected light, has any agency in its production. 3, When epidemic, it appears and declines about the same time, with our other summer miasmatic diseases. 4, It has been prevalent before the annual burning of the woods, which invariably takes place in some parts of this country, and therefore is not occasioned by smoke. 5, In the summer of 1807, I was assured of two cases, in which this disease alternated with cholera infantum; the ophthalmia prevailing at night and the cholera infantum in the day. Similar cases have been mentioned to me by Dr. J. Canby. 6, This disease has diurnal exacerbations. It is generally worst at night, even where the eyes have not been exposed to the light. In one case, the subject of which (a man of veracity and observation) communicated the account to Dr. Este, of Hamilton, it assumed a tertian type. During the paroxysm, which had about the length of a common fit of fever and ague, light and every exertion of the eye were intolerable; but during the intermission, he was entirely free from those morbid sensibilities. The same physician has also lately met with a case in his practice at that place, in which ophthalmia had true tertian paroxysms. 7, Topical applications are seldom adequate to the cure, and means calculated to operate on the general system, must be resorted to, in all violent cases. 8, It is somewhat difficult to conceive, how, either directly, or through the medium of the general system, the action of miasmata can be concentrated in the eye; but there does not appear to be in it, any physical impossibility.

Of the local remedies in this disease, I have generally seen the stimulating, the most beneficial. Cold water seldom gives permanent, and frequently not momentary relief. I had

lain it aside before reading the experiments of Dr. Wilson, which prove inflammation to consist in defective, instead of excessive action. Of the general remedies, blood-letting and purging are frequently necessary. They reduce the action of the system, at large, when necessary, and prepare it for the exhibition of opium and sudorifics. The former is necessary in all obstinate cases. I have seen from two to six grains given during a single night, with obvious and permanent advantage. In protracted cases, a salivation would probably be of great service. In a case of several months standing, in which the eyes were covered with films, to such a degree, as to produce total blindness in one, and very impaired vision in the other, after various collyria, blistering, repeated cupping, sternutatories, cathartics, opium and tonics (the pulse being weak) were employed for several weeks, with inconsiderable advantage; a salivation suddenly removed most of the inflammation, and promoted the absorption of the films, so far as to restore one eye entirely, and render colors perfectly distinguishable by the other.

DISEASES CONNECTED WITH VARIATIONS OF ATMOSPHERIC TEMPERATURE.

The diseases comprehended under this head, are not *exclusively* produced by changes in the temperature of the atmosphere; but this cause so frequently excites them, that they may with propriety be referred to it. The principal ones which have been observed to occur here, are Catarrh, Consumption, Pleurisy, Peripneumony, Rheumatism, and Tooth-ach.

CATARRH. This is the most ordinary and simple effect of the above cause. It does not appear to be more frequent or obstinate here than in other parts of the United States. The schneiderian membrane appears to be first affected in most cases of this disease. From thence the morbid action extends to the pharynx and larynx, and the pulmonary affection follows. In children, this disease is sometimes attended with such symptoms, that it can scarcely be distinguished from the genuine croup, except by the facility with which it yields to medicine. The common catarrh, upon a reference to its cause, appears to be essentially different from the influenza, and should probably be always regarded, in the language of Dr. Sydenham, as an intercurrent disease; yet

it sometimes becomes almost as prevalent as the epidemic just spoken of; and there is some foundation for believing that in the causes of the two diseases there is an intimate connexion. But as one of them results even from a trifling variation in the state of the circumambient caloric, and the other traverses whole continents, uninfluenced by any changes of that kind, it is difficult to perceive in what the connexion consists.

The catarrh is frequently a harrassing and protracted disorder, but is formidable, chiefly, as an exciting cause of consumption, of which we will now proceed to speak.

PULMONARY CONSUMPTION. From Dr. Spalding's bills of mortality, it appears that in Portsmouth, New Hampshire, a fifth of the deaths are from this disease. In Philadelphia it carries off between a fifth and a sixth. In this town, from several years observation, I am confident that a tenth or twelfth of our deaths from consumption, is a liberal estimation. So that if we make due allowance for the skilfuler treatment of this deplorable malady by our more enlightened fathers and brethren of the maritime cities, we may conclude that consumption occurs nearly three times as often in those places as in this town. It has, however, been a more frequent and fatal disease since the influenza of 1807, than before. Its subjects are generally women, between the ages of 15 and 30 years.

I have not had the satisfaction of seeing this disease cured by a salivation. In several cases mercury, in conjunction with the usual auxiliaries, has been exhibited to such an extent as to produce ptyalism for several weeks: It has appeared to mitigate, but in no instance, whatever, to remove the disease. From digitalis no greater benefit has been derived. In cases of legitimate phthisis, its exhibition has been continued unceasingly for several months; and it has sometimes moderated the pulse, but never superseded the cough or hectic fever. In two instances the vegetable alkali was given for many weeks in large quantities; but no advantage resulted. Of the efficacy of those nearly obsolete remedies, carbonated hydrogen gas and azotic gas, mixed with atmospheric air, I can say but little from experience. But in the vicinity of this town, nearly a whole family has been swept off by consumption, while living in a situation, the atmosphere of which, must have abounded, at least, with the former of these gases; and in 1808, a phthisical patient was put

under my care from an aguish part of the country, whose hectic fever was preceded, every other day, or every third day, by a chill and shake, so violent, that her friends supposed her to have the ague. The two diseases, indeed, appeared to be combined.

PLEURISY. This disease was more prevalent here previous to the visitation of the influenza, than since. It has seldom presented itself in such a shape as prohibited the use of the lancet. It is almost invariably attended with a preternatural excretion of bile, and not unfrequently with a very obvious degree of hepatic affection. Bleeding, blistering, and the common antiphlogistic regimen are inadequate to the cure in such compound cases, and a liberal use of mercury must be resorted to. It has been given so as to evacuate the bowels freely, and also to excite a ptyalism as early as possible. Upon the accession of that effect, the symptoms have almost invariably yielded. Mercury, indeed, is wholly indispensable in these bilious pleurisies, and when combined with the ordinary antiphlogistic treatment, is seldom unsuccessful.

PERIPNEUMONY. That singular epidemic the influenza, whilst it diminished, at this place, as has just been stated, the number of cases of pneumonia pleuritis, seems to have invited a more frequent occurrence of the pneumonia peripneumonia; for since the autumn of 1807, the latter disease has been much more common, than previous to that period. Its most conspicuous phenomena are, a frequent elastic pulse, cough, obtuse pain in some part of the thorax, or the total absence of all pain in that region; frequent and difficult, but not painful respiration, and inability to lie with the head and shoulders level with the body. In one case which terminated in vomica, not the slightest pain was at any time felt above the diaphragm; but there was a constant pain in the lower part of the left hypochondrium, attended with vitiated alvine discharges. In this complaint, there is not, as in the pleurisy, any crisis on the 5th, 7th, or 9th day, but it continues until, probably from congestion or disorganization of the lungs, it terminates in death, at no specific period; in vomica; or in health, from the successful exhibition of medicine. It is, like the pleurisy, occasionally attended with derangement of the biliary system.

In the treatment of this complaint, blood-letting and the ordinary antiphlogistics, are indispensable; but it is seldom possible to reduce the morbid force and frequency of the

pulse by them alone. From the progress and termination of several cases, it is rendered probable, that mercury and digitalis are the most efficient medicines that can be superadded to the common debilitating means. The first of those active substances should be given so as to produce a ptyalism, which in part effects the reduction of the pulse, and appears to prepare the system for the reception of the second. In the administration of the digitalis, a constant regard should be had to its effect on the pulse. If it do not produce a slow, pausing pulse, it is of but little advantage. During the convalescence from this disease, I have felt the pulse of a young adult, at 52 and 54 or 56 strokes in a minute, with very remarkable intermissions: when it was in that state she felt active and comfortable; when a relaxation in the exhibition of the medicine permitted the pulse to rise to 70 or 80, dyspnoea, & oppression at the breast rendered it difficult for her to lie down, or to make any considerable exertion. A salivation preceeded its use in this instance, and indeed in almost every case of peripneumony, in which it has appeared to be serviceable. The following case will in part confirm this, and may be somewhat interesting in other respects.

W. W. aged 26 years, with a flat chest, and distant shoulders, was seized in July with a severe cough, and inability to lie with his head and shoulders low. After trying the use of some popular remedies for several days, with no good effect, he applied to me. Finding his skin cool, his pulse slow and weak, his thorax entirely free from pain and stricture, and that he had no thirst, and could walk about, I did not at first suspect the existence of inflammation. An emetic and cathartic, with the subsequent use of anodynes, and a plaster of Burgundy pitch, were employed without any advantage whatever. In three or four days he was unable to lie down at all. His exemption from pain, and weak pulse continued; but it was determined to bleed him.—About eight ounces were taken, which exhibited some slight traces of buff. A blister was then applied to his side. His pulse did not rise, from bleeding, but as he felt rather better, the next day, it was repeated to the quantity of twelve ounces. The blood drawn this day was more sizzly; and after the operation, his pulse rose a little. On the succeeding day he was bled again. The blood exhibited much inflammatory crust, and after the operation his pulse became full, tense and frequent. His cough continuing, the admin-

istration of calomel, with squills and nitre, was now commenced. Venesection, to the quantity of fourteen or sixteen ounces, was continued every day, or every other day, from this time for a week, the pulse beating 120 strokes in a minute, with a great degree of energy. The blood was remarkably cupped and sizzly. By the expiration of that time, a salivation came on. No considerable reduction of the pulse followed, but he was able to lie with his head and shoulders lower. The use of digitalis was then begun. It was given in substance. In three or four days the expected intermissions in the pulse occurred, and it was soon at 60 and 54 in a minute, having sustained an equal reduction in its force and fullness. The cough soon became more moderate, expectoration increased, and his amendment was unequivocal. The digitalis has been continued ever since (a period of six months) in such quantities as generally to keep his pulse in a state of defective action; he has taken exercise on horse-back, and at this time has as good a prospect of complete restoration, as is consistent with a malformed thorax.

Was the pulse depressed in this case? Is it not more probable that the disease was at first local, and that the arterial system did not sympathize for some time. In the fanciful manner of Dr. Darwin, it might be said, that depletion increased the sensorial power of association, and brought the general system into excessive action, much sooner than it otherwise would have come.

Judging, which, however, is improper, from the event of a few cases, I am not disposed to ascribe much efficacy, in this disease, to the carbonic acid and carbonated hydrogen gases, as recommended by Dr. Withering and Dr. Beddoes.

CROUP. The cynanche trachealis, or hives, is here, as well as in the middle and northern maritime states, one of the principal diseases of children. It prevails more in autumn, winter, and spring, than in summer, and more in some years than others; but it has never assumed that malignant and epidemic character which, according to Dr. Dick, it exhibited at Alexandria in 1799. It is almost invariably attended with fever, and as constantly with a disordered state of the bowels, the alvine excretions being green or blackish.

In one case, only, have I employed blood-letting to any considerable extent. The infant had labored under the disease 16 or 18 hours, but still had a vigorous pulse. The

quantity taken was so considerable, as to produce partial deliquim. Many other of the usual remedies were employed, but the patient died. I have seen the violent operation of strong emetics at the commencement of the disease, as recommended by Dr. Rush and others, of great service. In one case that was fully formed, more than a dozen motions were procured by an emetic, in less than an hour; and the little patient began to recover immediately. After the operation of a strong emetic and cathartic, I have found the exhibition of a decoction of Seneca root, as recommended by Dr. Archer, of more benefit than anything else. Unusual quantities of emetic medicines are necessary to produce vomiting in these diseases; and the same observation may be made respecting the Seneca decoction. It should be very strong, and in most cases given in larger quantities than are recommended by Dr. Archer. In one case that was about to terminate fatally, such a free exhibition of this decoction was made, as to dislodge from the glottis great quantities of thick phlegm, tinged with blood. The irritation throughout the whole system was so great, for a few minutes, as almost to produce convulsions, but the urgent croup symptoms were mitigated, the threatened dissolution averted, and the child recovered. Would not the roots of the *Sanguinaria Canadensis* (which indeed have been employed) the *Lobelia siphilitica*, and the *Jeffersonia binata*, produce the same effect? The warm bath and blistering are excellent auxiliaries in this disease; but the first should never be employed until the intensity of the fever is abated by evacuants.

RHEUMATISM. This disease frequently presents itself in this country, but not often in a formidable shape. It appears to result from exposure to vicissitudes of the weather. Now and then it assumes the form of lumbago. In one instance it terminated in white swellings of various parts of the body. Among many other remedies, a protracted salivation, with a subsequent course of the volatile tincture of gum guaiac, was employed in this case without any good effect.

In the treatment of the milder cases of rheumatism, the people use the Seneca oil, a bituminous substance brought down the Allegheny river. Concerning the remarkable efficacy of this liquid, in removing the numerous cases of rheumatism and stiffness in joints, in a detachment of troops, here is a note by B. Lincoln, Esq. in the first volume of the American Museum.

The poke (*phytolacca decandra*) and the prickly ash (*zanthoxylum fraxinifolium*) are popular remedies of considerable estimation; but the *actea racemosa*, or squaw root, will probably supersede them. This powerful medicine has received too little attention from physicians. In two instances in this town, in which it was taken to excess, it produced the most violent and alarming effects. One of them I had an opportunity of witnessing. In about an hour after the tincture was taken, by a person able to go about, and of an inflammatory diathesis, violent pain in the epigastric region came on, with vomiting, intense head-ach and delirium. The face was flushed, and the pulse full, frequent and tense. The loss of fourteen or sixteen ounces of blood, followed by a portion of paregoric, and the subsequent use of a cathartic, carried off these disagreeable symptoms. The people no doubt frequently err, by using this medicine when too much inflammation exists.

TOOTH-ACH. Pain of the jaw, decay of the teeth, and tooth-ach, are common here, but by no means so frequent as in some of the states. According to Dr. Hazletine, these diseases constitute an eighth of the morbid affections incident to the inhabitants of the province of Maine.

Dr. Foot, in an ingenious paper, inserted in the Medical Repository, has rendered it highly probable that the undue prevalence of these maladies in the United States, is referrible to the sudden vicissitudes in our climate. The action of septic acid, generated in the mouth, may account for the destruction of the teeth in some particular instances; but it is difficult to believe that the teeth of the inhabitants of a whole country can suffer from that cause. I have seen a fine set of teeth apparently decomposed and very much injured in the course of a year, during which time the person labored under a high degree of dyspepsia, and frequently ejected a very sour liquid. If it be possible for oxalic acid to be generated in a human stomach, it probably was in this case; and in its passage through the mouth effected the decomposition of the teeth.

It frequently happens, that those who have decayed teeth, are seized with pains in the jaws, or some other parts of the face. These pains are often extremely severe. They are not fixed, but attack almost every part of the jaw and sometimes all the teeth in succession; but the most remarkable circumstance is, that the decayed teeth are quite as much and

in some cases more exempt from pain than the rest. The immediate exciting cause of this kind of pain, is exposure to cold; but the agency of the decayed teeth appears manifest, from the impossibility, in many cases, of removing the pain without extracting them. In one instance, the pain, after attacking most parts of the face, at length affected the whole anterior part of the head. The use of snuff, however, soon transferred it to the face again, where it obstinately resisted the application of galvanism and many other stimuli: upon extracting two decayed teeth, in which scarcely the slightest pain had been ever felt, the whole disease instantaneously vanished. In another case, the pain of the face was attended with many of the phenomena of hysteria; and likewise appeared to have a periodical type, recurring many times, in the forenoon. The pulse was weak during the paroxysm. The bark and volatiles afforded considerable relief. A blister was drawn, on the neck: it moderated the pain of the face, but became affected itself with a most insupportable sensation, which was likened to the action of needles or of animalculæ in the flesh, and at the same time it became very much inflamed.

There can be no doubt but that, as Dr. Darwin has asserted, this pain of the membranes which invest the jaws and alveoli, contributes to the destruction of the sound teeth; and therefore those teeth which are already decayed should be extracted as soon as any pain in the face is felt.

EPIDEMIC DISEASES.

Concerning these diseases but little will be said. They are, Measles, Mumps, Hooping-Cough, Angina maligna, Scarlatina anginosa, and Influenza.

It is not pretended that these affections can, properly, be grouped together; and by most physicians, the following superficial reasons for this arrangement will be deemed wholly insufficient:—They are seldom or never sporadic, but when they occur, it is almost invariably in an epidemic form; and as they do not appear to have the same origin with our miasmatic endemics, which are either local or general, according to the extent of their causes, they cannot be ranked with that tribe. Thus they have some agreement in cause. In their symptoms, although it have not been generally remarked, there is also some loose analogy. They all affect the throat and lungs chiefly. But in the type of the fever, which accompanies them, the similitude fails, for

some are generally attended with synocha, and others as continually with typhus. How they are arranged, however, in this series of memoranda, is a matter of little moment.

MEASLES. This disease has occasionally prevailed here, but not having seen many cases of it, I am unable to say whether its symptoms have exhibited any peculiarities. It does not appear to have proven fatal in any instance at this place.

MUMPS has also prevailed in Cincinnati and the adjoining country several times. In the year 1807, it was more general than at any other period. A few cases of its retrocession then occurred. In one instance of that kind, blood-letting, cathartics, and saturnine applications to the sympathetic tumour, which was large, were of very essential service.

HOOPING COUGH has affected the children of this part of the country more than either of the preceding diseases. For several years, indeed, it appears never to have been extinct in every section of this part of the state. In its symptoms nothing very peculiar has been observed, except that during the state of atmosphere which produces croup, the hooping-cough has sometimes assumed or counterfeited the phenomena of that disease. When medical aid has been applied for, emetics and cathartics, with the subsequent use of expectorants, tonics, and the cold bath, have generally been found sufficient. In one case, blood-letting appeared of decided advantage. A sweetened decoction of colts-foot or wild ginger (*tussillago*) is a popular remedy here, as in other parts of the United States. The precise value of this medicine appears to remain yet to be ascertained.

ANGINA MALIGNA & SCARLATINA ANGINOSA. The former of these diseases had an extensive and fatal prevalence in this country 18 or 20 years ago. It does not appear to have been epidemic since. The latter probably never has prevailed generally here. Within two years, however, there has been at this place a tendency to both these diseases. Within that period, a few bad cases, and a considerable number of very mild ones, more especially of the former disease, have occurred. It would seem as though their cause or causes were or had been among us, but in a state too diluted or unformed, to excite an extensive or fatal epidemic.

In the course of this constitution, cases of sore mouth have been common. Small blisters, ulcers and redness of the tongue, gums and inside of the lips and cheeks, with a bur-

ning sensation in those parts, were the usual symptoms. They were probably produced by such a gentle action of the cause of scarlatina, as was conjectured to produce the sub-maxillary abscesses mentioned by Dr. Rush.

In the treatment of these affections, Dr. Allison, Dr. Sellman and myself pursued nearly the same course. Emetics, calomel, and the bark, with blisters, mercurial frictions, and emollients externally to the throat; and astringent, alkaline, saline and pungent gargarisms, were the remedies generally employed. They were attended with considerable, but not invariable success—a few cases of the angina maligna proving fatal. In the smarting and blistered mouth, Dr. Sellman found magnesia alba a serviceable remedy. He conceived that the contents of the stomach were in a state of morbid acidity, and that the affection of the mouth was thereby aggravated. In a few cases, the stimulating gargle recommended by Dr. Farquhar, was employed, but not with the advantage experienced by him in the West Indies.

For six months past, few or no cases of these diseases have presented themselves.

INFLUENZA. The few remarks which follow, relate entirely to this disease, as it appeared in 1807. Cases of it occurred in town the two or three last days of September; but it was not general before the 5th or 6th of October. On the 29th and 30th of September, a great proportion of a regiment of militia, which was encamped in the open air, about seven miles from town, became affected. The dust and smoke and night air to which they were exposed, probably acted as exciting causes. This disease affected adults chiefly, but not exclusively. In a great number of its subjects, it was so mild as not to require any medicine. Intermittents which were prevalent at the time of its appearance, immediately declined, and it was soon left almost the only disease. During its reign, a sudden diminution of atmospheric temperature effected the supervention of pneumonic inflammation in several persons. These cases as well as many others, were attended with a very redundant secretion and excretion of bilious matter. The pulse was synocha, and they required copious blood-letting, with all the remedies generally employed in bilious pleurisies. In one of these cases, an ague which had left the patient just before the attack of influenza, returned for three successive days: but unequivocal signs of pulmonary inflammation existing, copious blood-letting, blistering and the antiphlogistic regimen were

employed. To this treatment the combination yielded, and abortion was prevented, though the period of gestation had more than half elapsed. But these compound cases were not the only ones in which bloodletting was advantageously employed. Whenever the pulse was excessive, the loss of blood was found to afford great relief. Emetics, cathartics, and febrifuges were likewise employed with considerable advantage. After the excess of morbid action had subsided, and in those who experienced no excess, gentle anodynes and stimulants were found of great service. In some persons a troublesome cough continued for many weeks after the other symptoms of the disease had subsided, and did not appear to be much affected by any of the common remedies for that complaint. It proved fatal to few or none. About the first of November, the disease began to occur more seldom, and was entirely gone by the middle of that month. After its disappearance, the town was very healthy.

The influence of this epidemic on the pulmonary diseases which have preceded it, has been already mentioned.

The equinoctial storms of the ensuing spring were unusually violent, and the temperature was low. Immediately after the equinox, a catarrhal affection, but little inferior to the influenza, in its violence and the numbers that were affected with it, appeared in this town and the adjoining country.

MISCELLANEOUS REMARKS.

The ITCH (*Psora*) or cutaneous affections nearly resembling it, are remarkably common in many parts of this country. They are ascribed by some to the water, but the cause of their general prevalence does not yet appear to be ascertained. They are treated by the people, with the different mercurial preparations, and in most cases with success; but sometimes they prove very obstinate. Occasionally these affections are in all probability attended with a scorbutic diathesis.

The *Lepra Grecorum*, now and then presents itself, generating, in its usual manner, immense quantities of large branny scales. I have observed it not to affect, at least in any considerable degree, those parts of the body that are uncovered. Venesection, cathartics, and low diet, with the subsequent and long continued use of mercury or arsenic, will generally effect a cure.

An affection, called by the people, catarrh, or guittar, now and then presents itself. It is a deep seated farunculus

of the joint that connects some one of the fingers with its metacarpel bone. It appears oftenest to attack the ring finger. Stimulating poultices and a free vent for the pus, produce a cure very readily.

A few cases of mortified gums, in children, have been observed. The first that presented itself was attended with a depraved state of the primae viae, and a moderate fever, inclining to the typhoid character. A great variety of astringents and stimulants was applied to the sphacelated parts, without arresting the progress of the disease. At length I discovered that the silver spoon, with which the mouth was examined, was tarnished by the action of an acid, which must necessarily have been the septic. I directed a solution of carbonate of potash, which in a short time produced a cure. The same application has been since made, in similar cases, with corresponding success. Since the occurrence of that case, I have read Dr. Harrison's paper on the diseases of Chillicothe, and find that cases of the same disease have occurred at that place, and were treated by him in the same way, with the best effect.

The Goitre is an endemic of some of the N. E. portions of this state, but it is not known here. The Scrophula, Rickets, and Scurvy, are very rare diseases. Canine madness has not been epidemic for many years, and Hydrophobia has not been observed to occur as a symptom of any of our other diseases. Insanity seldom presents itself; but the protean disease, Hysteria, is frequently met with. Hydrocephalus internus but seldom occurs. Tetanus is rarer still. But one case has occurred here for many years. It was produced by a wound in the hand. It proved fatal in less than three days after the spasms came on; probably from their extending to the muscles of the glottis. Cancers occasionally occur with their usual fatality. Calculus, Arthritis and Apoplexy, are rare diseases. Dropsies are more common, but generally appear only as one of the consequences of intermitting fever.

No bill of mortality has yet been kept in this place.

ERRATUM.—Where “OPHTHALMIA” occurs, read OPTHALMIA.



APPENDIX.

I. "*Columbo Root*."

In different parts of the western country, a bitter root, said to be the officinal columba, has excited considerable attention. In 1805, upon presenting that great botanist, professor Barton, with a specimen of it, he informed me that it was the root of the *Frassera Carolinensis* of Walter; the *Frassera Walteri* of Michaux. I have not been so fortunate as to obtain the works of those botanists, but the authority of the professor is unquestionable. The plant therefore is not a nondescript, as has been said. It however does not appear to be recognized in Turton's edition of the *Systema Naturae*.

It is sometimes found pentandrous, at other times tetrandrous, always monogynous. The stamina are erect, the antherae are deeply cut longitudinally, on both sides, and fixed obliquely. The style is simple, erect, and longer than the corolla, the stigma is somewhat bilobed. The calyx consists, when the plant is tetrandrous of four, when it is pentandrous of five, ovato-lanceolate, permanent leaves. The corolla has 4 or 5 lanceolate petals; with a nectariferous? radiated spot of bristles in the centre of the superior surface of each.* The stem (caulis) is from 2 to 7 feet high, smooth and straight. The cauline leaves are verticillate, glabrous, lanceolate, and from 4 to 8 in number. The radical ones of the same form. The branches are axillary, as numerous as the leaves of the whorl from whence they rise: they incline upwards, and send out opposite, axillary, one-flowered peduncles. The root of the young plant is fusiform and branching, of the old, tuberous and irregular. It is *said* to be triennial: it certainly is not annual. It is chiefly found in thin soils, among oak timber, or in prairies surrounded by that timber. I have never seen it in *fertile woodlands*. It flowers from the 25th of May to the 20th of June.

Every part of the plant is bitter, but the root is generally chosen for medicinal purposes. Dr. J. Canby, and others, inform me, that they have found it, more especially in its recent state, to possess considerable laxative power.

It gives out its bitterness both to aqueous and alcoholic menstrua, but more fully to the latter; the reverse of which

* Whether this be a specific or generic character, I do not know.

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is the case with the colomba. Its spiritous tincture also suffers decomposition, upon the addition of water, indicating that it contains resin, which the colomba does not. And the addition of decoction, or alcohol of galls, to its watery and spiritous infusion, caused no precipitate of cinchonin, the principal constituent of colomba.

Hence it appears to be essentially distinct from the substance to whose name it probably owes a portion of its reputation. It is, however, a medicine unquestionably entitled to attention,* and will no doubt be found equal, and possibly superior to most of our other indigenous bitters.

II. *New Disease.*

In the spring of 1809, Dr. Barbee, of Virginia, on returning from a visit to the Madriver country, in this state, gave me some information concerning a new and formidable disease which had appeared among the settlers of that tract. Since that time, I have been able to collect several additional facts respecting it, from different persons, more especially Mr. William Snodgrass, and Mr. John M'Kag, two intelligent and respectable inhabitants of that country, who have several times, experienced the disease in their persons and families. A summary of the whole, is here given, that physicians may determine how far it deserves the appellation of a new disease.

It almost invariably commences with general weakness and lassitude, which increase in the most gradual manner. About the same time, or soon after, a dull pain, or rather soreness, begins to affect the calves of the legs, occasionally extending up to the thighs. The appetite becomes rather impaired, and in some cases nearly suspended; sensations of a disagreeable kind affecting the stomach: upon taking a little food, however, a greater disposition for it is generated, and more agreeable feelings are introduced throughout the whole system. Intestinal constipation in this, as in all the subsequent periods of the disease, exists in a very high degree. A strong propensity to sleep occurs, and according to Dr. Barbee, the pulse is "full, frequent, round, and *somewhat* tense, but regular." During this stage, exercise of any kind is highly detrimental, and if persisted in,

* See Barton's Collections and Journal.

soon induces loathing and nausea at the stomach. If the patient repose, upon first experiencing these symptoms, they generally cease, and he is allowed a longer exemption from the *vomiting* that awaits him. Sooner or later, however, that symptom almost invariably succeeds the predisposition we have described, and either proves fatal in 1, 2, 3 or more days, or leaves the patient in a most exhausted state, from which he recovers only to sustain, at no distant period, a repetition of the same attack.

The matter ejected is sometimes bilious, but much oftener sour, and so acrid, that its action on the throat, in one case, (which proved fatal) was likened to that of boiling water. Towards the close of mortal cases, it is occasionally very dark colored so that it has been compared to that very convenient and fashionable object of similitude—coffee-grounds. At this time the intestinal constipation is very great: Mr. Snodgrass knew one patient in whom it continued for 9 days, throughout which he took no food whatever, and vomited during six of them. After such an attack, the propensity for sleep is destroyed, and an uncommon degree of watchfulness is produced. The patient remains languid, and his face and person generally become rather tumid. His skin is cool, palish, and frequently affected with clamminess. He has a disagreeable burning sensation in his stomach, and hot eructations are very troublesome. The thirst is considerable. The breath is peculiarly disgusting, even loathsome. The appetite is generally poor; and the inclination to costiveness remains. These symptoms often continue for several months, during which the patient experiences frequent returns of the vomiting. But at length, more especially upon the approach of winter, they gradually wear away, leaving the patient considerably worse than they found him, and liable to a fresh attack the ensuing summer.

Nothing like *regular* periodical exacerbations is observable in this disease; no chilliness occurs; the color of the skin and eyes does not deviate widely from that of health, and gives no striking indication of bile; there is no pain in the region of the liver, nor in the shoulder; it does not terminate in dropsy; nor are there any symptoms which bespeak it a disguised or anomalous intermittent. It however prevails (though not exclusively) in aguish situations, and intermitting diseases are thought to have declined since its appearance.

It affects all ages, conditions, and both sexes, indiscriminately; except probably very young children. They how-

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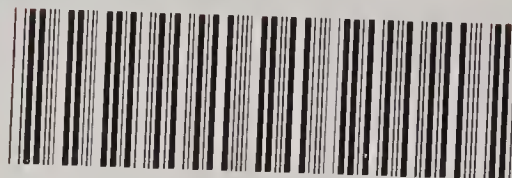
ever are not wholly exempt from it. Emigrants are not peculiarly liable to it. It was first observed in the summer of 1806, and is thought annually to extend its geographical range, and to become more intense. It sometimes commences in July or before, but oftener in August, and continues till the approach of winter, when it generally, but not always subsides.

The cure of this disease seems hitherto to have been left chiefly to the people, who have not yet discovered any certain method. Purging was a remedy that naturally suggested itself; and by some it has been thought very serviceable, more especially when effected by aloes; but others assert that they have frequently known a cathartic to increase the vomiting, and therefore rely more on enemata. All agree however, that the intestinal obstructions are to be overcome; and that the less the means made use of, affect the stomach, the better. Vomits evidently do harm. Blisters to the gastric region are considered the most efficient remedy. Tonics have been used, but no great benefit appeared to arise from them. Wine and salted meats, however, have appeared to do good, and are relished beyond any thing else. Indeed, eating a little frequently, whether an inclination exist or not, has been found a good palliative: It relieves the stomach from the gnawing which so perpetually exists. Alkaline lye has been used in one case: it gave some temporary relief, but not more than almost any other substance which might be received into the stomach. Bleeding has occasionally been resorted to, but with doubtful advantage. Ardent spirit appears to render the disease worse: It is not however, much sought after, all inclination for it, generally being destroyed. Tea and coffee, also, with several other articles of diet, which were agreeable before the disease, are in many cases disliked for a long time after.

This disease is unequivocally observed to affect four domestic animals: the horse, the cow, the sheep, and the dog. It is often fatal to the two former; but not so fatal to the latter. It as frequently attacks horses in the winter as summer, and sometimes kills them in 24 hours.

It prevails chiefly in the neighborhood of Staunton on the Great Miami, and in the country south of Madriver, between Dayton and Springfield. In those tracts, ponds and marshes occasionally occur, more especially in the former. The soil and water are calcareous. The timber generally oak.

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